Moderated Poster Session 1: Trauma and Reconstruction
Monday, October 1
13:15-14:45

MP-01.01
Impact of Prior Urethral Manipulation on Outcome of Anastomotic Urethroplasty for Post-Traumatic Urethral Strictures
Abdullah A, Jabbar A, Memon I
Liaquat National Hospital, Karachi, Pakistan

Introduction and Objective: To determine the impact of earlier urethral interventions on the outcomes of anastomotic urethroplasty in post-traumatic urethral strictures.
Materials and Methods: From Jan 2008 to Feb. 2010, a total of 42 patients with post-traumatic posterior urethral stricture underwent anastomotic urethroplasty. Eighteen patients had already undergone urethral intervention in the form of urethrotomy (5), endoscopic realignment (7), or open urethroplasty (6). Success was defined as no obstructive urinary symptoms, maximum urine flow rate > or = 15 mL/s, normal urethral imaging and/or urethroscopy, and no need of any intervention in the follow-up period. Patients who met the above objective criteria after needing 1 urethrotomy following urethroplasty were defined to have satisfactory outcome and were included in the satisfactory result rate along with patients who had a successful outcome. Results were analyzed using unpaired t test, chi-square test, binary logistic regression, Kaplan-Meier curves, and log rank test.
Results: Previous interventions in the form of endoscopic realignment or urethroplasty have significant adverse effects on the success rate of subsequent anastomotic urethroplasty for post-traumatic posterior urethral strictures ($P < .05$). Previous intervention in the form of visual internal urethrotomies (up to 2 times) did not affect the outcome of subsequent anastomotic urethroplasty. Length of stricture and age of patient did not predict the outcome in traumatic posterior urethral strictures in logistic regression analysis.
Conclusions: Previous failed railroading or urethroplasty significantly decrease the success of subsequent anastomotic urethroplasty. Hence, a primary realignment or urethroplasty should be avoided in suboptimal conditions and the cases of post-traumatic urethral stricture should be referred to centers with such expertise.

MP-01.02
The Accuracy of Observer-Interpreted Retrograde Urethrography in the Diagnosis and Staging of Anterior Urethral Stricture Disease
Bach P, Rourke K
University of Alberta, Edmonton, Canada

Introduction and Objective: The retrograde urethrogram (RUG) is an essential tool in the pre-operative evaluation of anterior urethral strictures because it provides valuable information on stricture presence, location, and length. The RUG is a dynamic test that depends on numerous factors to obtain adequate images for disease evaluation. While practices differ at various institutions, at our institution, the surgeon typically performs the RUG but produces films that are then interpreted independently by a radiologist. This study aims to assess the accuracy of RUG interpretation between the operating physician performing the procedure and the observing physician interpreting the films in order to evaluate the suitability of relying on observer interpretations for the purposes of pre-operative urethral stricture surgery planning.
Materials and Methods: A retrospective review was performed on a cohort of 397 patients undergoing anterior urethroplasty over a seven-year period at a single centre. Pre-operative RUG findings (stricture presence, location, and length) as reported by both the RUG operator and the observer were abstracted from the medical records. This data was compared to the gold standard of stricture location and length as measured intra-operatively. RUG adequacy was defined as comment on the presence, location, and length of urethral stricture. Statistical analysis was performed using Chi-squared, paired t-test, and linear regression.
Results: Only 49% (196/397) of observer-reported RUG studies were deemed adequate and 87% of observer-reported studies correctly diagnosed the presence of a stricture. When assessing stricture location, 49% of observer-reported studies correctly identified the location of the stricture compared to 96% of operator-reported cases ($p<0.001$). Of RUGs with an observer-reported stricture length ($n=144$), the mean stricture length reported by the observer was 3.23cm compared to 4.18cm by the operator and 4.56cm intra-operatively (all differences statistically significant with $p<0.001$). Upon linear regression analysis, the observer-reported length showed a 0.47 R^2-coefficient of correlation to the intra-operative length ($p<0.001$) compared to a 0.93 R^2-coefficient of correlation between the operator-reported length and the intra-operative length ($p<0.001$).
Conclusions: Our study suggests that observer-reported RUGs are neither adequate nor accurate for use in pre-operative staging of anterior urethral stricture. The observer-reported RUGs correlate poorly with intra-operative measurements when compared to operator-reported RUGs.

MP-01.03
"Minimally Invasive Urethroplasty" (Kulkarni's Technique): A Single Stage Reconstruction of Long Segment Inflammatory Urethral Stricture: A New Horizon of Urethral Reconstruction
Bhuiyan Z, Islam M, Bhuiyan N, Tawhid K
Dept. of Urology, Bangladesh Medical College, Dhaka, Bangladesh

Introduction and Objective: Urethral stricture disease is a major cause of obstructive uropathy and progressive renal upper tract deterioration specially in younger age group. Various surgical treatments are available now a day. In recent years "minimum invasive urethroplasty" (Kulkerni's technique) has gain its popularity as curative surgical option in single stage long segment inflammatory urethral stricture reconstruction with excellent long-term outcome.
Materials and Methods: This is a prospective study; done in the Department of Urology Bangladesh medical college Hospital and some private clinics of Dhaka city from Dec' 10 to Feb'12. The sample size was n – 30. All cases were long segment (≥ 5cm) inflammatory anterior urethral stricture. The approach was perineal. The whole length of penis has been delivered by reverse degloving technique. The whole stricture segment was dissected in one side keeping intact vascularity to other side. It was then detubularised and harvested buccal mucosa was used for dorsal substitution as free graft. The urethra then re-tubularised around a foly catheter. Perineal wound can be closed with or without drain.
Results: Post-operative recovery was excellent in all the cases. Mild urethral collection was noticed in all cases; expressed gently in regular basis. Its culture appeared negative. Catheter was removed at the end of third week. Normal voiding was ensured in all the cases. All patients were followed routinely with urine R/E, C/S and uroflometry. The mean period

of follow-up in our cases was 08 months. The overall outcome was excellent.
Conclusions: Urethral stricture disease is an ancient disease. Once it was considered as lifelong morbidity. The misery can be minimized to complete cure with Kulkerni's techniques of "Minimally invasive Urethroplasty".

MP-01.04
Sigmoid Vaginoplasty After Failed Sex Reassignment Surgery in Male Transsexuals
Djordjevic M, Bizic M, Stanojevic D
School of Medicine, University of Belgrade, Belgrade, Serbia

Introduction and Objective: Postoperative vaginal absence or obliteration presents the most difficult complications after vaginoplasty in male transsexuals. We evaluated our results in re-do vaginoplasty using sigmoid colon.
Materials and Methods: Between April 2000 and October 2011, 29 female transsexuals, aged 26 to 59 years (mean 32) underwent sigmoid vaginoplasty due to failed vaginal reconstruction. Penile skin inversion technique in 23 and free graft vaginoplasty in 6 patients were used. Isolated segment of rectosigmoid ranged from 8 to 11cm to avoid excessive mucus production. Rectosigmoid was harvested with blood supply originating on sigmoidal arteries or/and superior haemorrhoidal vessels. Stapling device was used for the colorectal anastomosis as a safest procedure. Creation of perineal cavity for vaginal replacement was done by abdominal and transperineal approach, simultaneously. Introital remnants or perineal skin flaps were used for anastomosis with sigmoid vagina. Postoperative dilation was recommended to prevent purse string scarring 6 months after surgery. Sexual and psychosocial outcomes assessment was based on Female Sexual Function Index, Beck's Depression Inventory and standardized questionnaires.
Results: Follow-up ranged from 6–143 months (mean 47). Good aesthetic result was achieved in 24 cases. Neovaginal prolapse (2) and deformity of the introitus (3) were repaired by minor surgery. There was no excessive mucus production, vaginal pain, or diversion colitis. Satisfactory sexual and psychosocial outcome was achieved in 24 patients.
Conclusions: Sigmoid colon presents a good choice for creation of neovagina in male transsexuals after failed vaginoplasty with minimal postoperative complications.

MP-01.05
Fistula Prevention by Longitudinal Dorsal Dartos Flap Covering in Proximal Snodgrass Hypospadias Repair
Djordjevic M, Majstorovic M, Bizic M, Korac G, Vukadinovic V, Krstic Z
School of Medicine, University of Belgrade, Belgrade, Serbia

Introduction and Objective: The Snodgrass technique presents the procedure of choice for distal hypospadias repair. Fistula formation is the most common complication with various rates. We evaluated the importance of a urethral covering using long vascularized dorsal subcutaneous tissue for fistula prevention for correction of proximal hypospadias.
Materials and Methods: Our study included 19 patients, aged 9 months to 11 years, who underwent proximal hypospadias repair from April 2008 through October 2011. Chordee was present in all patients and was corrected by dorsal plication. All patients underwent standard tubularized incised plate urethroplasty, which was followed by reconstruction of new surrounding urethral tissue. A very long, longitudinal dartos flap was harvested from the dorsal penile skin and transposed to the ventral side by the buttonhole maneuver. The flap was sutured to the glans and the corpora cavernosa to completely cover the neourethra with well-vascularized subcutaneous tissue. Penile body was covered using remaining penile skin.
Results: Mean follow-up was 25 (6–48) months. A successful result without fistula was achieved in 16 patients. Two fistulas healed spontaneously, while the remaining one was corrected by minor revision. There was no urethral stenosis.
Conclusions: Urethral covering with long dorsal well-vascularized dartos flap represents a good choice for fistula prevention. Redundancy of the flap and its excellent vascularization are promising for good outcome in proximal hypospadias repair using Snodgrass technique.

MP-01.06
Substitute Flap-Graft Urethroplasty for Obliterative Anterior Urethral Strictures: One Stage Repair
Djordjevic M, Kojovic V, Bizic M, Tulic C
School of Medicine, University of Belgrade, Belgrade, Serbia

Introduction and Objective: Severe anterior urethral strictures often require complete substitution of affected urethral segment. We evaluated a method of combining buccal mucosa graft and penile skin flap for neourethral reconstruction in the treatment of obliterative anterior urethral strictures.
Materials and Methods: Between April 2008 and October 2011, 35 patients aged from 14 to 63 years underwent one-stage substitution urethroplasty due to a severe anterior stricture. Indications were failed hypospadias repair (24), failed urethroplasty (6) and iatrogenic stricture (5). Patients with lichen sclerosis were not considered for this procedure. Obliterative urethral segment was completely removed from the corpora cavernosa. Urethral substitution was done using buccal mucosa graft, placed dorsally and vascularized dorsal penile skin flap, transposed by button-hole maneuver and sutured with graft. Penile body skin was reconstructed using available remaining penile skin.
Results: Mean follow-up was 25 months (ranged from 5 to 47 months). Mean length of the stricture was 5.8 cm and varied from 3 to 9.2 cm. Successful result was confirmed in 30 patients by uroflowmetry and urethrography. Short stricture occurred in 3 cases and was repaired 6 months after surgery. Fistula was noticed in two cases and resolved spontaneously two months later. Partial superficial necrosis of the dorsal penile skin occurred in 4 cases and healed spontaneously.
Conclusions: Combined buccal mucosa graft and penile skin flap could be a good choice for one-stage urethroplasty in severe anterior urethral strictures. This way multi-stage urethral reconstruction could be avoided.

MP-01.07
Genital Flaps for Urethral Lengthening in Female Transsexuals with Total Phalloplasty
Djordjevic M, Bizic M, Majstorovic M, Kojovic V, Korac G
School of Medicine, University of Belgrade, Belgrade, Serbia

Introduction and Objective: Urethral reconstruction presents the main problem in female to male gender reassignment surgery and includes creation of a very long neourethra, since the native urethral meatus in females is positioned too far from the tip of the glans. We evaluated new technique for urethral lengthening using different genital flaps.
Materials and Methods: Between April 2009 and October 2011, 32 female transsexuals underwent total phalloplasty with musculocutaneous latissimus dorsi flap. Simultaneously, urethral reconstruction was done using anterior vaginal flap, ure-

thral plate, both labia minora skin flaps and dorsal clitoral skin flap. A vaginal flap is harvested from the anterior vaginal wall with the base close to the female urethral meatus and joined with urethral plate forming the bulbar part of the neourethra. Further reconstruction was performed using available hairless skin flaps. Both labia minora and available clitoral skin were dissected with long pedicle and used for urethral tubularization. This way, new urethral opening was placed as far as possible into the neophallus, minimizing the requests for second stage neophallic urethroplasty.
Results: Mean follow-up was 19 months (ranged from 5 to 36 months). Length of new urethra ranged from 14 to 21 cm (mean 17.5cm). Location of the new meatus was in 22 in the first third and in 10 cases in the second third of the neophallus, respectively. Functional voiding was noticed in 26 cases. Urethral fistula occurred in 5 and healed spontaneously in 3 or closed by minor repair in 2 cases, respectively. Urethral stricture in 3 cases was located in neophallic part and solved by dilation in 6 months.
Conclusions: Combined, good vascularized genital flaps present a good choice for urethral lengthening in female transsexuals with total phalloplasty, maximally preventing the postoperative complications. This way, requests for second stage neophallic urethroplasty are minimized.

MP-01.08
Treatment of Traumatic Disruption of the Membranous Urethra by Endoscopic Urethral Realignment
Aldamanhori B, El Sadr A, El Darawany H
University of Dammam, Dammam, Saudi Arabia

Introduction and Objective: Traumatic injury with complete disruption of the posterior urethra results in a wide gap between the disrupted urethral ends. Suprapubic cystostomy with subsequent urethroplasty is a time consuming and challenging line of management. We demonstrated that early endoscopic urethral realignment resulted in complete mucosal healing, with a low incidence of mild urethral strictures that can be easily repaired by visual urethrotomy.
Materials and Methods: Nine male patients sustained urethral injury following RTA with complete disruption of the membranous urethra. Urethral realignment was done within 36 hours from the time of the accident, with insertion of an indwelling urethral catheter. Urethroscopic assessment was done after 6 and 12 weeks to follow progress in urethral healing.
Results: Progressive and consistent mucosal growth was demonstrated by follow up urethroscopy. Complete healing was achieved within 12 weeks after urethral realignment. Carefully repeated urethroscopy did not compromise the site of injury or the healing process. Two male patients developed a short stricture that was successfully treated by visual urethrotomy. None of the patients required surgical urethroplasty.
Conclusions: Urethral realignment should be the primary line of management for traumatic urethral disruption. This simple technique reduces the risk of development of urethral strictures. When a urethral stricture develops, it is usually mild and is easily managed by visual urethrotomy.

MP-01.09
13-Year Experience Using a New Technique of Ventral and Dorsal Buccal Grafting for One-Stage Repair of Obliterative Urethral Strictures
Gelman J
University of California, Irvine, USA

Introduction and Objective: Obliterative urethral strictures of the anterior urethra not amenable to excisional repair require circumferential tissue transfer. We describe our 13-year experience using ventral buccal grafts quilted to the corpus spongiosum in addition to dorsal buccal grafts to achieve circumferential tissue transfer for obliterative urethral strictures.
Materials and Methods: A total of 15 patients with a mean age of 49 years (range 5 to 67) and a mean stricture length of 6.5 cm underwent urethroplasty. The corpus spongiosum was incised dorsally. Buccal mucosa was quilted to the ventral aspect of the corporal bodies to reconstruct the dorsal aspect of the urethra. Where there was obliterative stricture disease, additional buccal mucosa was quilted to the corpus spongiosum in continuity with the urethra, and the onlay repair was then completed.
Results: All 15 patients are free of obstructive symptoms with patent urethras with a mean follow-up of 47.9 months (range 6 to 157). There was one stricture recurrence, which was successfully treated with direct vision internal urethrotomy (success 93%, and 100% after one urethrotomy). To our knowledge, this technique has not been previously described. Others have described dorsal and ventral graft repairs using a ventral approach. One advantage of the ventral approach is that no significant mobilization of the corpus spongiosum is required. Disadvantages of a ventral approach may include compromise of flood flow within the spongy tissue as the dissection extends through both the ventral and dorsal corpus spongiosum. In addition, the corpus spongiosum is less robust distal to the proximal bulb, especially if there is any atrophy or spongiofibrosis. This may limit the ability of the two halves of the incised corpus spongiosum to cover the graft if the goal is a 30 French caliber. Moreover, when tissue is used to cover the ventral graft, this may provide less a less reliable graft fixation than the quilting of the graft to the recipient bed.
Conclusions: Dorsal and ventral buccal grafting for long urethral strictures appears to be an excellent option to repair long anterior urethral strictures that include obliterative disease.

MP-01.10
Clinical Characteristics of Urethral Strictures in Indonesia: The Largest Series from Five Centres
Hakim L[1], Djatisoesanto W[1], Soebadi M[1], Rizaldi F[1], Seputra K[2], Duarsa G[3], Widjanarko S[4], Soedarso M[5], Soebadi D[1], Hardjowijoto S[1]
[1]Dept. of Urology, Airlangga University School of Medicine, Dr. Soetomo Hospital, Surabaya, Indonesia; [2]Dept. of Urology, Brawijaya University School of Medicine, Dr. Saiful Anwar Hospital, Malang, Indonesia; [3]Dept. of Urology, Udayana University School of Medicine, Sanglah Hospital, Denpasar, Indonesia; [4]Dept. of Urology, Sebelas Maret University School of Medicine, Dr. Moewardi, Surakarta, Indonesia; [5]Dept. of Urology, Diponegoro University School of Medicine, Dr. Kariadi Hospital, Semarang, Indonesia

Introduction and Objective: We present clinical characteristics of urethral strictures collected from 5 teaching hospitals in Indonesia
Materials and Methods: Data collection was conducted in 5 teaching hospitals among 5 high-density population cities in indonesia (i.e Surabaya, Malang, Semarang, Surakarta and Denpasar) during the period of 2006-2010. These hospitals were referral centres in their respective regions, with Dr.Soetomo Hospital (Surabaya) as the top-referral centre for East Indonesia. Diagnoses were based on clinical signs and symptoms, confirmed

by urethrography. Descriptive data analysis were conducted against 640 samples. Cross-tabulation analysis were also performed to present distinctive characteristics among centres.
Results: A total of 640 cases were enrolled in this analysis. Mean age of sample was 52.2 ± 17.272 (3-92) years. Troicar cystostomy, open cystostomy and catheter insertion were the most frequent initial procedures, contributing 42.1%, 27.4% and 21.9% respectively. Eighty-one percent of samples have not experienced urinary tract infection, while 30.5% had trauma histories and or intrumentations. Eighty-six percent samples denied having surgeries previously. Among those who had history of surgeries, more than half underwent Direct Visualised Internal Urethrotomy (DVIU, 62.8%), followed by Primary Endoscopic Realignment (PER, 25.1%) and delayed-repair urethroplasty (13.7%). Partial obstruction was the main cause of stricture (78.6%), with length of fibrosis less than 1 cm (71%) at the bulbous urethral site (33.6%). Most patients underwent DVIU (87.9%) for definitive treatment, followed by external urethrotomy (4.6%) due to severity of disease, and urethroplasty (4.3%). Patients were asked to perform self-catheterization (CIC) for certain time in their lives and to attend the follow-up regularly. The average time to re-stricture in this series was 8.45 months (2-96).
Conclusions: Urethral strictures in Indonesia were related to trauma by traffic accidents and history of previous surgery or instrumentation. DVIU were still the main treatment for simple urethral stricture. The short average time to re-stricture pointed out the necessity for better treatment options towards a better outcome, of which cell-based therapy would be one consideration.

MP-01.11
Outcomes Following Buccal Mucosal Graft Staged Urethroplasty
James M[1], Virasoro R[1], Lyons M[1], Sidhu A[1], Jordan G[1,2,3], McCammon K[1,2,3]
[1]Eastern Virginia Medical School, Norfolk, USA; [2]Urology of Virginia, Norfolk, USA; [3]Devine Center for Genitourinary Reconstructive Surgery, Norfolk, USA

Introduction and Objective: Complex anterior urethral strictures provide a surgical challenge for the reconstructive urologist. Patients often present following multiple failed procedures with persistent voiding difficulty. Tissue substitution is often required for successful repair. Buccal mucosal graft (BMG) has become the tissue of choice given its excellent graft characteristics and low associated morbidity. The use of BMG in single staged urethroplasty has shown excellent success and durability, however the outcomes following its use in staged procedures for patients with extensive urethral strictures is not well documented. We present our outcomes following a staged BMG urethroplasty at a single institution.
Materials and Methods: Patients who underwent staged BMG urethroplasty between January 1, 1999 and August 8, 2011 were identified. A retrospective chart review was performed to collect clinical data including patient demographics, stricture etiology, and post-op complications following first and second stage procedures. Outcomes were assessed including durability of results, recurrence rates, and additional procedures required.
Results: Fifty-seven patients underwent a staged BMG urethroplasty during the designated time period. The average patient age was 41 years. Stricture etiology was hypospadias in 26 patients (46%) followed by lichen sclerosus in 16 patients (28%) with unknown etiology in the remaining patients. The average stricture length was 7.5 centimeters. Eighty-five percent of patients had undergone at least one attempt at a prior repair, 71% had 2 prior repairs and 48% had 3 prior repairs. Following the first stage procedure 11 (20%) patients elected not to undergo a second stage procedure. Complete follow-up was available in 42 patients (74%). There were 7 major complications (12%) including fistula development in 4 patients, penoscrotal tethering in 2 patients and meatal stenosis in 1 patient. The majority of the complications were successfully treated with an additional procedure. Three other patients required additional procedures including conversion to a perineal urethrostomy, a suprapubic tube and urethral dilation. The overall success rate was 76% defined as patients who required no further procedure at an average follow-up of 25 months.
Conclusions: Substitution urethroplasty is often necessary to treat complex anterior urethral strictures such as those seen in complex hypospadias patients and in patients with lichen sclerosus. The staged BMG is an effective treatment for these patients with acceptable complication rates. Further follow-up is required to confirm durability.

MP-01.12
The Interest of the Use of the Vaginal Ruffle in the Cure of Obstetric Vesico-Vaginal Fistulas
Fouda P[1], **Junior Barthelemy M**[1], Hervé M[2], Sow M[1], Sosso M[1]
[1]Central Hospital of Yaounde, Yaounde, Cameroon; [2]Laquintini Hospital of Douala, Douala, Cameroon

Introduction and Objective: The obstetric vesico-vaginal fistula is a communication between the bladder and the vagina due to a prolonged labor. The surgical care of these women is confronted with two major problems: their extreme poverty and the difficulty of access to the best healthcare. The objective of this work is to improve this surgical care by reducing not only the cost, but also the risks related to the surgery
Materials and Methods: We had operated 76 patients affected by obstetric vesico-vaginal fistulas from 17 to 48 years old with an average of 26 years. We noted that 15 (19.73%) patients had been operated at least once previously. Only were taken care of by this technique, fistulas trigonales and retrotrigonales of the type I classification of Ouattara. The patient is installed in the gynecological position, hanging buttocks on the edge of the table, a valve with weight opens the vaginal cavity exposing the fistula which is localised. A circular incision about 0.5 cm of the edge of the fistula is realized. The cleavage of the bladder of the vagina is made on both sides of the vaginal incision. The ruffle returned to the bladder constitutes a neo-bladder mucosa. It is stitched edge to edge with the absorbable thread 3/0. The closure of the bladder muscular is done by the absorbable thread 2/0 in separate points
Results: We operated on 76 patients under locoregional anesthesia. Seventy-four (97.36) were completely cured of their fistula at the end of 3 months. We noted two failures among which a patient was HIV-positive and one having walked on her probe and having extracted it. The most frequent complaint met in 7 (9.45) patients, was the leakage by mictional urgency treated successfully by anticholinergic. The average duration of the surgical operations was of 50 minutes, the average of the bleeding was of 150cc
Conclusions: It is about a reliable, economic, simple surgical technique for a surgeon working in difficult conditions, even in case of uretral meatus located near the edge of the fistula. It does not apply to the complex cases requiring more important means and greater expertise.

MP-01.13
Multivariate Analysis of Outcomes in 534 Urethroplasties
Kinnaird A, Levine M, Nadeau B, Zorn J, **Rourke K**
Div. of Urology, University of Alberta, Edmonton, Canada

Introduction and Objective: Urethroplasty has emerged as the gold standard therapy for urethral stricture, but failures do occur. The purpose of this study is to evaluate overall surgical efficacy and to identify factors that may lead to stricture recurrence.
Materials and Methods: A retrospective review of all urethroplasties performed at a single institution from August 2003 to April 2011. Preoperative data was collected including age, stricture length, location and etiology, co-morbidities, and previous procedures. All urethroplasties were performed by a single surgeon and were assessed within one month post-operatively, had cystoscopy at 6 months and then followed-up as required. Failure was defined as a recurrent stricture on cystoscopic assessment. Multivariate analysis of preoperative and procedural factors was calculated by Cox regression in SPSS 19 software.
Results: There were 534 urethroplasties performed during the study period. Mean patient age was 44.3 with an average stricture length of 4.9cm. Stricture location was anterior urethra in 445 (83.3%), posterior urethra in 63 (11.8%), and panurethral in 26 (4.9%). 114 (21.3%) had a previous reconstruction. Stricture etiology was trauma in 150 (28.1%), hypospadias in 55 (10.3%), lichen sclerosus in 51 (9.6%), iatrogenic in 40 (7.5%), radiation (brachy/EBT) in 16 (3%), inflammatory in 15 (2.8%), and idiopathic in 207 (38.8%). Overall urethral patency was 91.9%. Multivariate regression identifies lichen sclerosus, iatrogenic, and inflammatory etiologies to be independently associated with stricture recurrence with hazard ratios (95% CI) of 10.6 (2.4-47.1; $p<0.01$), 9.3 (2.2-39.8; $p<0.01$), and 18.8 (4.2-83.3; $p<0.001$), respectively. Strictures longer than 5cm trended to recur HR 2.4 (0.93-6.0; $p=0.07$) while strictures located in the anterior urethra appear to have a lower incidence of recurrence HR 0.25 (0.06-1.04; $p=0.056$). Co-morbidities, smoking, previous procedures, type of urethroplasty performed, and an age ≥65 were not associated with stricture recurrence.
Conclusions: Urethroplasty is an excellent option for urethral stricture disease with urethral patency approaching 92%. Lichen sclerosus, inflammatory and iatrogenic strictures are associated with increased risk of stricture recurrence. Strictures longer than 5cm may have increased risk of recurrence. Anatomically, anterior strictures appear to be most amenable to urethroplasty success.

MP-01.14
Adjustable Transobturator Male System (ATOMS) for Male Post-prostatectomy Stress Urinary Incontinence: Initial Multi-centre Experience in Hong Kong
Law M[1], Chu S[1], Chan S[2], Cheung H[3], Fan C[4], Hou S[2], Man C[1]
[1]Div. of Urology, Dept. of Surgery, Tuen Mun Hospital, Kowloon, Hong Kong; [2]Div. of Urology, Dept. of Surgery, Prince of Wales Hospital, Hong Kong; [3]Div. of Urology, Dept. of Surgery, North District Hospital, Hong Kong; [4]Div. of Urology, Dept. of Surgery, Pamela Youde Nethersole Eastern Hospital, Hong Kong

Introduction and Objective: To retrospectively evaluate the short term outcome of Adjustable Trans-Obturator Male System (ATOMS) for post-prostatectomy stress urinary incontinence.
Materials and Methods: All cases of ATOMS for post-prostatectomy stress urinary incontinence done in Hong Kong up to Mar 2012 were included. Totally 8 male patients mean aged 75 years (range 71 – 78) underwent ATOMS from Mar 2010 - Nov 2011 in four centres. The ATOMS consists of a cushion for supporting the bulbar urethra which is then connected to a port placed subcutaneously in the supra-inguinal area for future pressure adjustment of the cushion.
Results: All 8 patients had prostatectomy performed 1-6 years prior to the ATOMS implantation: laparoscopic radical prostatectomy (4), robot assisted radical prostatectomy (2), laparoscopic converted to open simple prostatectomy (1) and open retropubic radical prostatectomy (1). All had stress urinary incontinence which persisted despite pelvic floor rehabilitation and was confirmed by video urodynamic study. The mean number of pads used was 4 (range 3 – 6). Flexible cystoscopy was done in 5 patients before ATOMS implantation and none had anastomotic stricture. The mean operative time was 78 minutes (range 60 – 100). There was no bladder injury intra-operatively. Three patients had incontinence completely cured without any adjustment required and were all diaper free. Five patients had persistent leakage with adjustment of cuff performed at mean 7 months after ATOMS implantation (range 1 – 17). Average 2.8 ml more saline was injected to the system (range 2 – 5). Within the ATOMS adjustment cases, one patient with prior cystoscopic demonstration of large bladder diverticulum developed retention of urine and required clean intermittent self-catheterization three times per day in addition to spontaneous voluntary voiding. He was still diaper dependant and so adjustment of cuff was performed. Two patients had unsatisfactory urinary control after first adjustment of ATOMS requiring second adjustment. 5.5 ml more saline at 2 months after first adjustment for the first case and 4 ml more at 4 months for the second case. Leakage improved in both cases after second adjustment. Mean follow-up duration is 12 months. There was absence of sling erosion in these patients.
Conclusions: Our early experience demonstrated that ATOMS is efficacious in the treatment of male SUI and had the advantage of being adjustable anytime after operation. Moreover, unlike the artificial urinary sphincter, it spares the patients the stress of having to manipule the device for micturition. However, longer follow-up and larger case series is required to ascertain its long term efficacy.

MP-01.15
Urethroplasty after Radiotherapy: A Single-Institutional Experience
Sayedahmed K, Kaftan B, Jachertz T, Olianas R
Dept. of Urology, Lueneburg Hospital, Luenebueg, Germany

Introduction and Objective: External-beam radiation and radioactive iodine-125 or palladium seeds are becoming more widespread in the treatment of localized prostate cancer. Late complications of radiation therapy may occur months or years following the completion of treatment. Reconstructive surgery after exposure to radiotherapy is known to be a challenge due to impaired blood supply and wound healing. We present our results of urethroplasty in patients with previous history of radiation therapy.
Materials and Methods: Retrospective analysis of the outcome of 25 previously irradiated patients, who underwent urethroplasty; N=17 and n=8 patients underwent end-to-end and buccal mucosal graft urethroplasty, respectively. All cases were operated in the same institute by the same surgeon. Recurrence was defined as cystoscopic finding of stricture less than 17 Fr in diameter. Complication

rate was the end point of this study.
Results: Mean age of all patients was 66 years (range 54-82 years). Mean dose of radiotherapy was 84.2 Grey. Mean length of stricture was 3.5 cm (Range 1-7.5 cm). Stricture was located in bulbo-membranous urethra in 19 (76%), bulbar urethra in 4 (16 %) and in penile urethra 2 (8%) of patients. The mean follow-up of the patients was 24.2 months (range 7 - 56 months). The urethroplasty was successful without recurrence during the follow-up in 72% of cases. Recurrent strictures were managed with visual internal urethrotomy in 2 (8%) and with buccal mucosal graft in 3 (12%) of patients. Urinary diversion was required in 2 (8%) patients. However 10 (40%) patients developed postoperative urinary incontinence, artificial urethral sphincter was successfully implanted in 60% of them. There were no cases of new onset of erectile dysfunction after urethroplasty, and 88% of patients were satisfied and reported significant improvement of quality of life.
Conclusions: The results of urethroplasty in patients with previous history of exposure to radiotherapy, in experienced hands, are better than expected. The high incidence of postoperative urinary incontinence has to be considered.

MP-01.16
Artificial Urinary Sphincter AMS 800 after Urethroplasty
Sayedahmed K, Jachertz T, Kaftan B, Riepehusen J, Olianas R
Dept. of Urology, Lueneburg Hospital, Luenebueg, Germany

Introduction and Objective: The artificial urinary sphincter AMS 800 has proved to be successful for control of stress urinary incontinence. To our knowledge results of artificial urinary sphincter in patients with urinary stress incontinence after urethroplasty have not previously reported. We present our experience in this group of patients.
Materials and Methods: We retrospectively reviewed the medical records and operative reports of 22 male patients who underwent implantation of artificial urinary sphincter after urethroplasty from 2006 to 2011. In our institute we select the site and number of the placed cuffs individually according to urethral state, cause and location of the previous stricture. All patients were operated by one surgeon. Complication rate was the endpoint of our study.
Results: Mean age of all patients was 56 years (Range 38-78 years). Stricture was located in the membranous urethra in 13 cases (59.1%), in the bulbar urethra in 8 cases (36.1%) and in bulbo-penile urethra in 1 case (4.5%). Mean stricture length was 2.9 cm (range 1-10 cm). End-to-end urethroplasty was done in 12 patients (54.5%), buccal mucosal graft urethroplasty in 9 patients (40.9%) and skin graft urethroplasty in 1 patient (4.5%). Twelve patients (54.5%) received double-cuff in the region of bulbar urethra, 5 patients (22.7%) transcorporal cuff placement technique, 4 patients (18.2%) membranous single cuff and in 1 case (4.5%) bladder neck cuff placement. Mean follow-up was 20.6 months (Range 3-45 months). During follow up urethral erosion at the cuff site occurred in 4 Patients (18.2%), failure due to atrophy at the cuff site in 2 patients (9.1%) and mechanical failure in one case (4.5%). No cases of device infection reported. Revision was done in 7 cases (31.8%). Recurrent urethral stricture occurred in 3 patients (13.6%). There was 77.3% of the patients who needed only 0-1 security pad daily; 22.7% needed more than one daily. Eighteen patients (81.8%) reported satisfactory continence and significant improvement of the life quality.
Conclusions: Our study suggests that implantation of artificial urinary sphincter AMS800 in patients with significant stress incontinence and previous history of urethroplasty is possible and can provide satisfactory continence.

MP-01.16, Table 1. 77.3% of the patients needed only 0-1 security pad daily. 22.7% needed more than one daily.

Membranaus	13	59.1%
Bulbar	8	36.1%
Bulbo-penile	1	4.5%
End to End	12	54.5%
Buccal mucosal graft	9	40.9%
Skin graft	1	4.5%
Distal doppelcuff	12	54.5%
Transcorporal	5	22.7%
Membranous	4	18.2%
Bladder neck	1	4.5%

MP-01.16, Table 2. 18 patients (81.8%) reported satisfactory continence and significant improvement of the life quality.

Urethral erosion at the cuff site	4 Patients (18.2%)
Failure due to atrophy at the cuff site	2 patients (9.1%)
Mechanical failure	1 case (4.5%)
Revision	7 cases (31.8%).
Recurrent urethral stricture	3 patients (13.6%)
Infection	-

MP-01.17
Perineal Urethrostomy in Management of Urethral Strictures in 206 Patients
Shah S, Modi P, Bhandari N
Dept. of Urology, Ikdrc, Civil Hospital, Ahmedabad, India

Introduction and Objective: To study perineal urethrostomy offered as a management of urethral strictures in 206 patients over 24 years.
Materials and Methods: From 1988 to 2010 in our tertiary care department a total 206 patients with urethral strictures had perineal urethrostomy. In 102 patients, it was offered as a temporary procedure with Johanson Urethroplasty; however, they chose it as a permanent procedure. The remaining 104 patients were offered it as a permanent procedure for different etiology. The data was retrospectively checked and their urethrogram were reviewed. Patients' age was 16-78 years and follow-up was between 2-20 years. A standard 6-8 cm urethrostomy was created using Blandy's technique. Complications and quality of life were reviewed.
Results: There were 102 patients offered temporary procedure but they chose it to be permanent due to squatting type Indian commode in rural areas and lack of finance for a 2nd surgery. There was 30% of the patients who had meatal stenosis as a complication. Half of them required revision surgery. Overall, quality of life in all of them was good.
Conclusions: Perineal urethrostomy should be offered as a definitive procedure in select group of urethral stricture patients. Acceptance of this procedure, if explained well, is good. The quality of life over a long time is also good.

Moderated Poster Session 2
Sexual Function and Dysfunction
Monday, October 1
13:15-14:45

MP-02.01
Sexual Dysfunction in Men with Thyroid Disorders
Hamidi Madani A, Mehrdad S, Heydarzadeh A, Kasgari E
Urology Research Center, Guilan University of Medical Sciences, Rasht, Iran

Introduction and Objective: Sexual dysfunction (SD) involves a lot of men worldwide and affects personal communications and interrelationships, familial life and quality of life. In many cases, SD is a feature of an endocrine dysfunction such as thyroid disorders. However, few studies have been conducted in the field of association between thyroid disorders and SD.
Materials and Methods: In this study,100 men with hyper & hypothyroidism (59 patients with hypothyroidism, 41 patients with hyperthyroidism) who referred to endocrinology clinics of Guilan University of Medical Sciences, and were not in euthyroid phase during the last 4 weeks were surveyed with International Index of Erectile Function (IIEF) questionnaire, between 2009/21/April and 2010/21/April. Patients also were questioned about ejaculatory function. The data processed with SPSS 16 and the relative frequency of any fields of SD was compared with the normal ranges in general population.
Results: Of 100 patients, 70 cases suffered from sexual dysfunction. Rates of erectile dysfunction, hypoactive sexual desire, orgasmic dysfunction, overall satisfaction dysfunction, intercourse satisfaction dysfunction and ejaculatory dysfunction were 21, 45, 19, 37, 59, and 32%, respectively.
Conclusions: Patients with thyroid disorders suffer from SD more than the general population. Intercourse satisfaction dysfunction and hypoactive sexual desire involve these patients more than other types of SD. Although, SD is not a life-threatening problem, because of its important affect on the quality of life and personal communications problem, evaluation of SD in patients with thyroid disorders seems necessary.

MP-02.02
Effects of Testosterone Administration Sexual Function in Aging Males with Symptoms of Late-Onset Hypogonadism and Normal or Subnormal Testosterone Level: A Comparative Analysis
Pourmand G, Sajadi H, Dehghani S, Heidari F, Salem S, Mehrsai A
Urology Research Center, Sina Hospital, Tehran University of Medical Sciences, Tehran, Iran

Introduction and Objective: Although testosterone replacement can reverse many symptoms of androgen deficiency, the testosterone administration effects on sexual function of patients with normal testosterone level and clinical symptoms of hypogonadism have not been understood yet.
Aim: To further evaluate and compare the impact of testosterone administration on the sexual function of elderly men with sexual symptoms of late-onset hypogonadism(LOH) and normal or subnormal testosterone level.
Materials and Methods: In this prospective study, 48 married men with mean age(range) of 53.1 (40-75) years who suffered from sexual symptoms of LOH, particularly erectile dysfunction(ED), and did not previously respond to the 5 phosphodiesterase (PDE-5) inhibitors usage, were recruited and allocated into three age and body mass index matched study groups, based on their serum total testosterone (TT) levels; Group I:<3.5ng/ml (n=19); Group II: 3.5-6 ng/ml (n=20) and Group III:>6 ng/ml (n=9). All patients received 250mg testosterone enanthate injection and followed up for 3 weeks. Main Outcome Measures: Sexual function domains including erectile function (EF), orgasmic function (OF), sexual desire (SD), intercourse satisfaction (IS) and overall satisfaction (OS) of participants were determined at screening visit and study end via the International Index of Erectile Function (IIEF) questionnaire. Serum TT, luteinizing hormone, prostate-specific antigen, fasting blood sugar and lipid profile were also measured.
Results: The mean duration of sexual dysfunction was 27.85±19.41 months. Following treatment, the mean TT level increased significantly from 2.28ng/ml to 3.39ng/ml in group I, but decreased insignificantly in groups II and III. Compared with baseline sexual function, the subjects were more satisfied with their EF, OF, SD, IS and OS after receiving therapy. Improvement in EF was observed in 72.9% patients (68.4%, 80% and 66.7% for Groups I, II and III, respectively, P<0.001).
Conclusions: This study suggests that in aging males with sexual symptoms of LOH who were non-responder to the PDE-5 inhibitors therapy, androgen administration, regardless of TT level, could improve sexual function domains, especially ED, in a short-term period.

MP-02.03
Lack of Predictive Correlation Between Peripheral Arterial Tone and Color Flow Doppler Parameters in Men with Erectile Dysfunction
Shoskes D, Seager C, Li J
Glickman Urological and Kidney Institute, The Cleveland Clinic, Cleveland, USA

Introduction and Objectives: Erectile Dysfunction (ED) is associated with systemic cardiovascular disease. Many patients have reduction in penile arterial inflow and venous occlusion as measured by color flow penile Doppler. Peripheral arterial tone (PAT) abnormalities, measured non-invasively in the upper extremity, correlate with cardiac disease and mortality. We wished to study whether penile hemodynamics correlated with PAT and whether the less invasive PAT could reliably predict the results of penile Doppler in men with ED.
Materials and Methods: Fifty men presenting to an ED clinic who requested etiologic evaluation were tested with an Endo-PAT2000 machine which assessed the Augmentation Index(AI) (normal < 3%), a measure of arterial stiffness and Reactive Hyperemia Index(RHI) (normal > 1.8), a measure of endothelial vasodilation. Penile hemodynamics were measured following pharmacologic erection with prostaglandin E1 using color flow Doppler. Arterial insufficiency was defined as peak systolic velocity (PSV) < 30 cm/s and venous insufficiency as end diastolic velocity (EDV) >3 cm/s. Comorbidities were recorded and degree of ED assessed by the International Index of Erectile Function (IIEF). Between-group comparisons were done using Wilcoxon rank-sum test for continuous variables and chi-square test for categorical variables. Simple and multivariable logistic regression analyses were used for analysis of both Doppler measures.
Results: Patients ranged in age from 21 to 74 (mean 51.1) and had a mean IIEF of 28.0. By Doppler, 58% had decreased arterial inflow and 48% had venous insufficiency. By Endopat, 54% had decreased endothelial relaxation and 44% had

increased arterial stiffness. By univariate logistic regression, increased arterial stiffness was marginally associated with arterial insufficiency (p=0,0656), while only increasing age (p=0.0025) was associated with venous insufficiency; RHI was not correlated with PSV or EDV. The closest association was between low AI and low PSV, with a sensitivity of 0.55 and specificity of 0.71.
Conclusions: In our ED patient cohort, peripheral arterial tone did not reliably predict arterial or venous findings on penile color flow Doppler. These tests appear to measure different although potentially complementary aspects of the local and systemic vasculature.

MP-02.04
The Acceptability and Expectations Towards PDE5-I in ED Treatment in Cultural and Socio-economically Diverse Asian Populations
Kong C[1], Tiang K[2], Ng KL[4], **Lee G**[3], Abdul Razack A[4]
[1]University of Glasgow, Glasgow, Scotland, UK; [2]University of Queensland, Brisbane, Australia; [3]Monash University, Bandar Sunway, Malaysia; [4]University of Malaya, Kuala Lumpur, Malaysia

Introduction and Objective: Erectile Dysfunction (ED) commonly affects up to 52% of the male population. Phosphodiesterase5-Inhibitors (PDE5-I) has been the first line treatment for ED for just more than a decade compared traditional and complementary medicine (TCM). Attitude towards PDE5-I, and its perceived efficacy can ensure treatment acceptability and compliance. Unrealistic expectations may result in perceived treatment failure. ACCEPT (Asian Constraints and Concerns in ED Perceptions and Treatments) study observed the perceptions and attitudes towards ED treatment in the cultural and socio-economically diverse Asian population.
Materials and Methods: Patients who attended non-urological clinics in a tertiary teaching hospital were recruited to complete non-validated questionnaires. The questionnaire aimed to identify participants' perception of PDE5-I and TCM on efficacy, acceptability as a first line treatment and its ability to cure ED. Statistical sub-analysis of the participants' race, gender; age, income, educational levels and sexual activeness were recorded.
Results: A total of 3372 subjects (2032 males and 1340 females) were recruited in the study. Overall, 82% of the participants believed PDE5-I to be efficacious and 74% were willing to accept it as first line therapy for ED compared to the 62% and 54% who thought TCM was efficacious and acceptable as first line therapy. Concurrently, 58% believed ED is curable with PDE5-I. There is no significant difference in the opinions among the different gender (P= 0.373), household income (P= 0.073), and sexual activeness (P= 0.657) groups who believe that ED is curable with PDE5-I. However, we found significant inconsistencies among age (P=0.008), education level (P= 0.002) and ethnicity (P= 0.000). Amongst whom, 61% from lower educational backgrounds and 61% of the 45-65 years age group had the perception of curative ability of PDE5-I.
Conclusions: Our study demonstrated PDE5-I is well accepted and perceived to be efficacious in socio-economically and culturally diverse populations in Asia, although we also highlighted unrealistic expectations, such as the curative ability PDE5-I. Older age and lower educational background subgroups were identified as more likely to have such wrong perceptions. Targeted patient education and awareness initiatives can thus be useful in managing patients' expectations in the treatment of ED.

MP-02.05
Effectiveness of Transdermal Electromotive versus Intralesional Injection of Verapamil and Dexamethasone in Treating Peyronie's Disease
Pourmand G, Mehrsai A, Namdari F, Dehghani S
Urology Research Center, Sina Hospital, Tehran University of Medical Sciences, Tehran, Iran

Introduction and Objective: To compare the effectiveness of transdermal electromotive versus intralesional injection of verapamil and dexamethasone in treating Peyronie's disease.
Materials and Methods: From 6.1.2010 to 6.1.2011, 60 patients with Peyronie's disease and a history of <24months, non-calcified plaques and diabetes mellitus were included. Thirty patients received weekly intralesional injections of verapamil 10mg plus dexamethasone 4 mg for 6 weeks, weekly verapamil 10 mg plus dexamethasone 4 mg via transdermal electromotive were administered for 30 patients for 6 weeks. All patients were examined one and three months after the treatment. Response has been defined as regression in plaque-size, reduction in penile curvature, pain, IIEF and improved vaginal penetration.
Results: Transdermal electromotive approach and intralesional injection groups were assigned as group 1and 2, respectively. Although patients' symptoms such as plaque size, curvature, vaginal penetration and IIEF improved, the differences between the groups were not significant in plaque size one month (p<0.351) and three months after the treatment (p< 0.169). There was no significant difference in penile curvature of the groups one month (p<0.601) and three months after the treatment (p< 0.389). However, in the transdermal electromotive group, pain decreased significantly in one month (p<0.001) and three months (p<0.0003) after the treatment.
Conclusions: The results of this study indicate a significant decrease of pain between the groups; the transdermal electromotive administration of verapamil and dexamethasone is clinically safe and appears to be an effective treatment in patients with peyronie's disease but it is more expensive than intralesional injection.

MP-02.06
Comparison of the Dropout Rates of Sildenafil Use and Intracavernous Injection Therapy: A Seven-Year Follow-Up Study
Culha M, Ozkan L, Gulecen T, Yavuz U, Ustuner M, Ciftci S, Kart M
Dept. of Urology, Kocaeli University Medical School, Kocaeli, Turkey

Introduction and Objective: On long-term follow-up different dropout rates, we speculated for both intracavernous self injection and type 5 phosphodiesterase (PDE5) inhibitor treatments. This is the first study that dropout rates of both treatments were compared.
Materials and Methods: A total of 277 patients with different etiologies of erectile dysfunction (ED) were enrolled for the study. All patients had good response to the oral and intracavernous injection therapy at the beginning. There were 161 patients treated with 50-100mg sildenafil on demand. Tripletherapy(PGE1, papaverine, phentolamine) was used for intracavernous self injection in 116 patients. All patients enrolled in both programs were contacted by six months periods and invited to an office visit or a phone interview was performed. The dropout rates during successful treatment were assessed using the Kaplan-Meier method and Long rank test. P< 0.05 was considered significant.
Results: There were 44 patients (27%) in the sildenafil group who dropped out

after one year. An additional 11 patients (7%) in the second year, and the cumulative dropout rate after seven years period was 89 patients (55%). Six patients (5%) in the intracavernousal self injection group dropped out after one year at the beginning. An additional 4 patients (3.4%) in the second year and the cumulative dropout rate after a seven-year period was 20 patients (17%). There is a statistically significant difference between the dropout rates of these two groups ($p< 0.05$).
Conclusions: Interestingly the dropout rate of these second-line therapies for ED was estimated very low from the first line in our study. Reasons for this result need to be explored in another study.

MP-02.07
Long-Term Testosterone Replacement Therapy Improves Erectile Function, Urinary Function and Quality of Life in Middle-Aged to Elderly Hypogonadal Patients
Haider A[1], Saad F[2,3]
[1]Private Urology Practice, Bremerhaven, Germany; [2]Scientific Affairs Men's Health, Bayer Pharma AG, Berlin, Germany; [3]Gulf Medical University School of Medicine, Ajman, UAE

Introduction and Objective: Hypogonadism is often associated with erectile dysfunction (ED), lower urinary tract symptoms (LUTS) and impaired Quality of Life. We studied long-term effects of testosterone treatment in elderly hypogonadal men treated with parenteral testosterone undecanoate.
Materials and Methods: In a cumulative registry study, 255 men (mean age: 60.6 ± 8.0 years) with testosterone levels ≤ 3.50 ng/mL were treated with injectable testosterone undecanoate for up to 60 months. An initial 6-week interval (loading dose) was followed by 12-week intervals.
Results: Testosterone increased from 2.87 ± 0.4 at baseline to 5.26 ± 0.44 at the end of five years. The International Index of Erectile Function (IIEF) increased from 21.13 ± 4.63 at baseline to 24.83 ± 3.8 after 60 months, most pronounced over the first 24 months but still slowly progressive thereafter. The International Prostate Symptoms Score (IPSS) improved from 6.73 ± 4.21 to 2.83 ± 1.25 ($p<0.0001$ vs baseline with significant changes over the previous year up to 48 months). As an objective measurement, residual bladder volume decreased from 46.61 ± 22.74 mL to 19.74 ± 6.25 mL ($p<0.0001$ vs baseline with significant changes over the previous year up to 48 months). Quality of life was assessed by the Aging Males' Symptoms score (AMS). AMS improved from 55.01 ± 10.2 to 17.35 ± 0.55 ($p<0.0001$ vs baseline) reaching a plateau after 24 months. Inflammation seems to play a role in both erectile and urinary function. As measures of inflammation, highly sensitive C-reactive protein (hsCRP) and leukocyte count were assessed. hsCRP decreased from 6.29 ± 7.96 mg/L to 1.03 ± 1.87 ($p<0.0001$ vs baseline) with a plateau after 36 months. Leukocyte count decreased from 8.06 ± 2.98 $x10^9$/L to 5.74 ± 0.81 ($p<0.0001$ vs baseline).
Conclusions: Sustainable and progressive improvement of IIEF and IPSS was remarkable in conjunction with improvement of features of the metabolic syndrome. Testosterone treatment in hypogonadal men may reduce inflammation resulting in improvement of erectile and voiding capacities.

MP-02.08
Does Circumcision Affect the Ejaculation Time?
Malkoc E[2], **Dursun F**[1], Uguz S[3], Ates F[1], Okcelik S[1], Karademir A[1]
[1]GATA Haydarpasa Egitim Hastanesi, Istanbul, Turkey; [2]Corlu Asker Hastanesi, Tekirdag, Turkey; [3]Agri Asker Hastanesi, Agri, Turkey

Introduction and Objective: One-third of the men in the world are circumcised and the relationship between circumcision and the premature ejaculation is discussed for a long time. The aim of this study is to question whether circumcision has any effect on the duration of ejaculation.
Materials and Methods: In this prospective study adults who wanted to be circumcised voluntarily in September 2010 - November 2011 have been included. The ejaculation latency times (ELT) before and 3 months after circumcision were recorded by the subject himself at 3 different times. In addition, before and 3 months after circumcision, the Premature Ejaculation Diagnostic Tool (PEDT) form validated in 2007, was filled out by volunteers. PEDT is formed by five questions and it determines the person's ejaculation control, and distress situation. While making statistical evaluation, the comparison of situations before and after circumcision was made by the ELT averages and PEDT total scores.
Results: Thirty volunteers (mean age 21.25±0.44) participated in the study. The volunteers pre-circumcision mean and median ELT were 104.36 ± 66.21, 88 (26-307) seconds respectively; mean and median ELT after circumcision were 123.56 ± 54.44, 107.5 (67-300) second respectively; the increase in duration of ejaculation after circumcision was statistically significant ($p = 0.004$). The mean and median PEDT score before circumcision were 4:26 ± 2.91, 3 (1-12) respectively; after circumcision this value was calculated as 2.63 ± 1.82, 2 (0-7) respectively; improvement was statistically significant (<0.001).
Conclusions: By this study we determined that adults who were circumcised ejaculation time is prolonged. In addition, we have shown that circumcision increases the persons control over ejaculation.

MP-02.09
Assessing the Influence of Benign Prostatic Hyperplasia (BPH) on Erectile Dysfunction (ED) Among Patients in Poland
Dutkiewicz S[2], Skawinski D[1], Duda W[2], Duda M[2]
[1]Dept. of Prevention and Epidemiology of Neoplasms, Institute of Public Health, Faculty of Health Sciences, J. Kochanowski University, Kielce, Poland; [2]Dept. of Urology, E. Michałowski Urological Hospital, Katowice, Poland

Introduction and Objective: Erectile dysfunction (ED) and the lower urinary tract symptoms caused by benign prostatic hyperplasia (LUTS/BPH) are highly prevalent among aging men. More data are needed from studies evaluating the impact LUTS/BPH on ED. his study aimed to assess ED in patients with LUTS/BPH independent of comorbidities.
Materials and Methods: During 2007 and 2008, we examined 10,932 patients aged from 50 to 69 years with LUTS/BPH (IPSS = 8-19 points) using questionnaires: Sex-Score and International Index of Erectile Function 5 (IIEF-5). Patients with comorbidities were excluded from meta-analyses and included those who used alcohol and/or cigarettes and those with hypertension, diabetes, or hyperlipidemia and cholesterolemia, which left 4,354 patients with LUTS/BPH without any comorbidity subjected to the analyses. **Main Outcome Measures**: the main survey instruments used were the Sex-Score and IIEF-5.
Results: Regarding sexual coexistence, 1,497 (34.4%) and 2,638 (60.6%) patients considered it very important or important, respectively; however, 219 (5%) patients reported no sexual

activity. After excluding sexually inactive patients, only 1,088 (25%) patients had the ability to obtain an erection during sexual activity always or nearly always. However, that erection was only strong enough to penetrate their partner almost always or most of the time in 218 (5%) and 826 (19%) patients, respectively, and only 610 (14%) patients were always able to maintain their erection during sexual intercourse. While only 87 (2%) patients had no difficulty maintaining their erection until the completion of intercourse, 174 (4%) and 914 (21%) patients stated that sexual intercourse gave satisfaction nearly always or most of the time, respectively.
Conclusions: The impact of ED on patients with LUTS/BPH is evident across domains.

MP-02.10
The Assessment of the Efficacy of Combination Therapy with Folic Acid and Tadalafil for the Management of Erectile Dysfunction in Men with Type 2 Diabetes Mellitus
Hamidi Madani A, Asadolahzade A, Mokhtari G, Shahrokhi Damavand R, Farzan A, Esmaeili S
Urology Research Center, Guilan University of Medical Sciences, Rasht, Iran

Introduction and Objective: To evaluate the efficacy and safety of folic acid plus tadalafil in the treatment of erectile dysfunction (ED) in diabetic men.
Materials and Methods: There were 100 patients with type 2 diabetes mellitus and ED included in this randomized placebo controlled trial. They were randomly divided into two groups. Group A was treated with tadalafil 10 mg every other day plus folic acid 5 mg daily, and group B received tadalafil 10 mg every other day plus placebo daily for 3 months. The mean IIEF score before and after treatment in each group was recorded. Men with diagnosis of psychologic ED, spinal cord injury, or who used folic acid in the past 3 months and patients with any contradiction for use of PDEI were excluded.
Results: The mean IIEF score before and after treatment were 9.30±4.51 and 14.8±5.45 in group A ($p<0.001$) and 12.46±2.65 and 14.16±2.39 in group B ($P<0.001$), respectively. Although, after treatment between two groups, the difference of mean IIEF score was not statistically significant ($P=0.449$), but the mean IIEF score significantly increased in group A as compared with group B. [5.52±4.62 vs. 1.72±1.05 in group A and B, respectively ($P<0.001$). Both folic acid and tadalafil were well tolerated by all patients.
Conclusions: In diabetic patients with ED, folic acid is safe and when it is added to tadalafil, the improvement of sexual function is increased compared to patients who use tadalafil plus placebo.

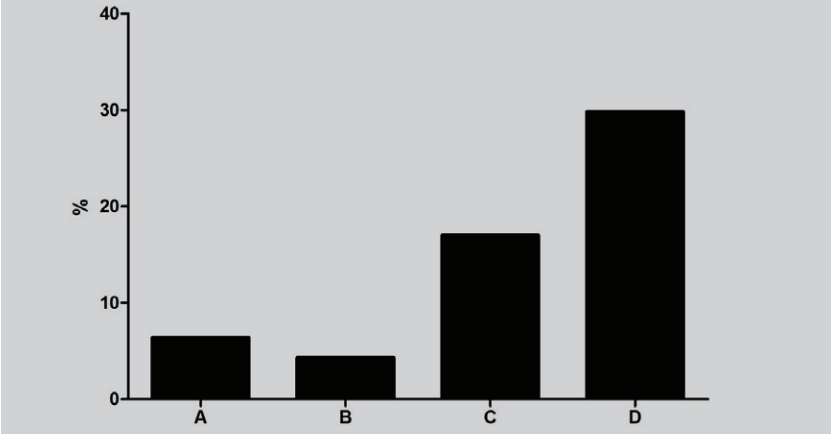
MP-02.11
Evidence Based Evaluation of Health Information on Erectile Dysfunction in 10 National-wide Daily Newspapers in Korea
Lee J, Chang J, Diaz R, Cho K, Choi Y
Dept. of Urology, Urological Science Institute, Yonsei University College of Medicine, Seoul, South Korea

Introduction and Objective: A rapid growth of socioeconomic status in Korea has triggered health information resolution of unprecedented magnitude among the general population. Despite its obvious benefits, the increase in the amount of information could also result in many potentially harmful effects on both consumers and professionals who do not use it appropriately. Thus, this study was conducted to evaluate health information on erectile dysfunction in 10 national-wide daily newspapers.
Materials and Methods: This study was performed to evaluate health information in 10 national-wide daily newspapers in Korea from January 2011 through December 2011. We evaluated the quality and the accuracy of health information provided in 10 national-wide daily newspapers. We reviewed the health information for quality using the evidence-based medicine tools which evaluate the accuracy required to understand the text. Simple reporting and advertising articles were excluded.
Results: A total of 47 articles were gathered. Among them, 27 (57.4%) contained inaccurate or misleading statement based on evidence-based medicine. These included confusing surrogate outcome with an end outcome (3 cases, 6.4%), extrapolating nonhuman results to human (2 cases, 4.3%), exaggerating results in conclusion (8 cases, 17.0%), incorrect words (14 cases, 29.8%) (Figure 1). The rate of error was higher in information of Korean source compared to those of international sources (22 cases vs. 5 cases).
Conclusions: The rate of inaccurate medical information was approximately 57% of total information in the articles of 10 national-wide daily newspapers.

MP-02.12
Testicular Catch Up Following Adolescent Varicocele Repair
Kamal M, Elsherif E
Dept. of Urology, Menofeya University, Shebeen El Kom, Egypt

Introduction and Objective: Varicocele is present in 15% of the general population and it is affecting 40% of infertile men. Varicocele has risk effects on spermatogenesis and the results are oligo-astheno-spermia by various mechanisms. Sometimes varicocele is affecting the adolescents and there is controversy regarding repair. The objective: we investigated the effect of varicocele repair on testicular volume and growth in adolescents with varicocele and testicular atrophy.
Materials and Methods: In a 2-year period a prospective study was carried at Menofya University Hospitals on 23 adolescents with varicocele. Testicular

MP-02.11, Figure 1. Evidence based evaluation of inaccurate health information.
A: confusing surrogate outcome with an end outcome, B: extrapolating nonhuman results to human, C: exaggerating results in conclusion, D: incorrect words



atrophy was considered when there was a decrease in size by 20% than the other testicle size .These boys underwent varicocele surgery and follow-up was carried out 6, 18 months. Preoperative and postoperative testicular volumes were monitored and measured with Doppler scrotal ultrasonography.
Results: An IBM compatible personal computer was used to store and analyze the data and to produce graphic presentation of the important results. Calculations were done by means of statistical software package namely "SPSS, 19 edition". The significance of the results was estimated by calculation of probability of chance "P-value". It is calculated using the Chi-Square value,student t test, Mann-Whitney test and F test. We noted significant improvement in testicular volume with less than 20% disparity between the 2 gonads in the 23 patients
Conclusions: Our study confirms significantly increased testicular volume in many surgically treated boys and shows that physiological catch-up growth occurs in adolescents after varicocelectomy.

MP-02.13
Androgen Replacement Therapy Improved High-Molecular Weight Adiponection Status in Patients with Late-Onset Hypogonadism
Konaka H, Sugimoto K, Shigehara K, Mizokami A, Koh E, Namiki M
Dept. Of Integrative Cancer Therapy and Urology, Kanazawa University School of Medicine, Kanazawa, Japan

Introduction and Objective: Several reports have suggested serum total adiponectin (Ad) levels may be repressed by testosterone (T) concentrations increased in men. But little is known whether androgen replacement therapy (ART) may reduce high-molecular weight (HMW)-Ad levels. In this study we prospectively clarify an inverse correlation of plasma HMW-Ad levels with free-T (FT) concentrations and evaluate a change in HMW-Ad status during ART in late-onset hypogonadism (LOH) patients.
Materials and Methods: In 253 patients with LOH, height, weight, waist, fasting plasma glucose (FBS), serum FT, serum total-Ad and molecular weight fractions of Ad, serum total cholesterol (Chol), triglyceride (TG), high-density lipoprotein (HDL)-Chol, and low-density lipoprotein (LDL)-Chol levels were evaluated. All participants randomly assigned to the two groups with or without ART. Both HMW-Ad levels before and after ART were also compared in patients with serum FT < 11.8 pg/mL.
Results: Serum HMW-Ad levels increased with increased age ($P < 0.01$) and HDL-Chol ($P < 0.001$), decreased with increased FT ($P < 0.01$), BMI ($P < 0.001$), waist circumference ($P < 0.001$), TG ($P < 0.001$), and FBS ($P < 0.05$). Multiple regression analysis revealed that FT, TG, and HDL-Chol were factors influencing on serum HMW-Ad levels. In the 104 patients receiving ART, HMW-Ad levels before and after ART did not differ significantly. Moreover, HMV-Ad levels after ART were increased in baseline characteristics of subjects ($n = 68$) with low concentrations of HMW-Ad ($< 2.5\ \mu g/mL$) and were decreased in those ($n = 36$) with high concentrations of HMW-Ad ($\geq 2.5\ \mu g/mL$) ($P < 0.01$ and $P < 0.05$, respectively). In the 149 patients as a control without ART, there was no significant difference between HMW-Ad concentrations at baseline and one year later.
Conclusions: We conclude that an inverse correlation between HMW-Ad and FT levels exists in LOH patients, and that ART does not reduce serum concentration of HMW-Ad in its lower levels at baseline. These results indicate that ART appear to be a reasonable treatment strategy for LOH patients without risk of side effect due to a decrease in HMW-Ad levels.

MP-02.14
Safety and Efficacy of Intra-Operative Modifications to the Shah Penile Prosthesis to Achieve Customized Fits in Narrow, Fibrous, or Perforated Corpora
Shah R[1,2]
[1]Lilavati Hospital & Research Centre, Mumbai, India; [2]Muljibhai Patel Urological Hospital, Nadiad, India

Introduction and Objective: The SHAH penile prosthesis is a non-inflatable, differential rigidity, hinged implant. Since it has two removable sleeves, and is made entirely of silicon, its length and diameter can be selectively trimmed to match a narrow or fibrous penis. Aim of this study was to assess whether customizing the implant by trimming, cutting or suturing through it, would affect implant function or predispose to infection.
Materials and Methods: There were 59 men implanted with a Shah prosthesis modified in one of the following ways: (a) Selective removal of distal 3 cm of sleeves (44 cases); (b) Placement of fixation sutures through the implant and tunica (10 cases); (c) Shortening of one implant of a pair by cutting through the hinge (4 cases); (d) Shaving the implant to selectively narrow a segment (1 case). Patients were monitored for 12 months after surgery for infection, silicon leakage, implant instability or malfunction.
Results: Trimming the implant proved to be highly effective in managing a variety of difficult situations. Removal of the distal part of the implant sleeves proved useful when the corpus was wide but tapered to a narrow distal end under the glans. Partial sleeve removal made the distal part of the implant 4 mm narrower, thus achieving a snug fit under the glans while maintaining a larger, more optimal diameter in the shaft. This did not compromise implant function or predispose to infection. In cases of proximal corporal perforation, the Shah implant was shortened, positioned distal to the perforation, and then transfixed to the tunica with a nylon suture. This avoided the need for a windsock repair. Puncturing the implant did not lead to complications. When the corpora were severely fibrosed the Shah implant could be shortened, or selectively narrowed by shaving so as to fit the fibrotic corpora without the need for a mesh to achieve closure. Implant function was satisfactory in all.
Conclusions: This study shows that the Shah prosthesis can be safely mutilated to achieve a custom fit in cases of corporal narrowing, fibrosis, or perforation. This makes it particularly useful for salvaging difficult-to-dilate corpora.

MP-02.15
No-Scalpel Midline Scrotal Mini-Incision Two Layer Vasovasostomy: An Approach with Minimal Morbidity and High Efficacy
Roushani A, Khosropanah I, Gholamjani Moghaddam K, Kiani A, Hemati Khatami A, Taleghani S, Allahkhah A
Urology Research Center, Guilan University of Medical Sciences, Rasht, Iran

Introduction and Objective: The request for vasovasostomy increases the tendency to safer and more effective methods. We explain our experience in two layer vasovasostomy using no-scalpel midline mini-incision.
Materials and Methods: During an 11-year period, 187 male underwent vasectomy reversal using no-scalpel midline scrotal mini-incision two layer vasovasostomy under spinal anesthesia by a single surgeon. Sperm granuloma remained intact. Oral analgesic use >2 doses was considered as postoperative significant pain. Success was defined as presence of sperm in semen at 1 or 3 or 6 months

after operation or pregnancy. Asospermia after primary presence of sperm in postoperative semen was defined as secondary obstruction.

Results: Mean age and mean vasectomy-vasovasostomy interval were 41.07±8.81 and 6.05±4.18 years. Microscopic/loupe ratio and unilateral/bilateral ratio of cases were 172(92%)/15(8%) and 95(50.8%)/92(49.2%), respectively. In 166 cases (88.8%), fluid exited from the testicular end of vas (clear: 25.3%; creamy:31.3%; turbid:43.4%). Mean operative time was 73.29±16.72 minutes (the last 7 surgeries: 65.86±9.72 minutes). The same day, all patients were discharged and returned to ordinary activities. The only complication was significant pain in one patient (0.5%). Success and secondary obstruction rates were 84% (unilateral: 74.7%; bilateral:94.2%) and 3.9%. Mean sperm count was 9.57, 11.64, 18.64 millions/ml semen at 1, 3, 6 months after operation respectively. Pregnancy rate was 69.1% (71.2% in cases with success and without secondary obstruction). No significant differences were seen in success rate between age groups and in success and pregnancy rates between groups of magnification, presence or absence of fluid exit from testicular end of vas and its multiple appearances. Success and pregnancy rates in vasectomy-vasovasostomy interval ≤6 years (90.1%, 64.4%) and bilateral vasovasostomy (93.2%, 69.6%) were significantly ($P<0.05$) higher than group with interval >6 years (72.7%, 44.7%) and unilateral procedures (75%, 43.8%) respectively. Microscopic vasovasostomy (75.14±18.94 min) had significantly shorter mean operative time than loupe vasovasostomy (107.13±7.23 min).

Conclusions: No-scalpel midline mini-incision two layer vasovasostomy results in minimal morbidity, fast recovery and superior outcomes. Vasectomy-vasovasostomy interval and laterality influence success and pregnancy rates.

Moderated Poster Session 3
Stones: Pathogenesis and Investigations
Monday, October 1
13:15-14:45

MP-03.01

The Role of Renal Tubular Cell Injury in the Early Period of Renal Crystal Formation: Identified from the Cell Injury-Inhibiting Effect of Green Tea

Masahito H[1], Hamamoto S[2], Naruyama Y[1], Fukuda K[1], Okada A[2], Kubota H[1], Yasui T[2], Yamada Y[1], Tozawa K[2], Kohri K[2]
[1]Dept. of Urology, Kainan Hospital, Kainan, Japan; [2]Dept. of Nephro-Urology, Nagoya City University Graduate School of Medicine, Nagoya, Japan

Introduction and Objective: Previously, we suggested the involvement of renal tubular epithelial cell (RTC) injury in the pathogenesis of renal stones, and reported the importance of RTC injury for renal crystal formation. We performed immunohistochemical staining and transmission electron microscopy (TEM) in the early period of renal crystal formation, and evaluated the difference with or without the cell injury-inhibiting effect of green tea (GT), and clarified the role of the RTC injury.
Materials and Methods: Daily intraabdominal injection of glyoxylate (GOX) into mice treated with normal water or GT was performed for 6days. Kidneys were extracted before and at 6, 12, and 24hr and 3 and 6days after GOX administration. Crystal formation was detected using Pizzolato staining and polarized light optical microscopy. Immunohistochemical staining and Western blotting of superoxide dismutase (SOD), 4-hydroxynonenal (4-HNE) and malondialdehyde (MDA) were performed to observe oxidative stress, lipid peroxidation, and RTC injury, respectively. Immunohistochemical staining and Western blotting of osteopontin (OPN), part of the renal crystal matrix and inflammatory cytokines, were also performed. RTC microstructural damage and crystal nucleus formation were observed using TEM.
Results: In normal water-treated mice, we detected renal crystals after 3 days and detected more crystals after 6 days, but could not detect crystals after 6, 12, or 24 hours. After 6, 12, and 24 hours, we detected a decrease of SOD and increase of MDA and 4-HNE. OPN expression increased after GOX administration. In TEM, after GOX administration, mitochondria and microvilli of the RTC collapsed, aggregated in the renal tubular lumen, and crystal nuclei appeared. In GT-treated mice, we did not detect renal crystals after 3 days, but after 6 days. In the early period of renal crystal formation, the cell injury-inhibiting effect reduced the collapse of mitochondria of RTC, decreased cell debris, and delayed crystal formation. OPN was decreased in GT-treated mice compared with normal water-treatment.
Conclusions: Mitochondria are injured by GOX, and free radicals appearing from mitochondria cause inflammation through the OPN and injure the RTC. As a result, cell debris appears in the lumen of the renal tubule, and crystals are formed. This is our suggested mechanism of crystal formation, which was inhibited by GT.

MP-03.02

Do Anaerobes Bacteria Play a Role in Staghorn Nephrolithiasis?

Kogan M[1], Hasigov A[1], Belousov I[1], Naboka Y[2], Bragina L[2], Shiranov K[1]
[1]Dept. of Urology, Rostov State Medical University, Rostov-On-Don, Russia; [2]Dept. of Microbiology and Virology, Rostov State Medical University, Rostov-On-Don, Russia

Introduction and Objective: The different species of urea-splitting microorganisms are known to play an important role in of staghorn stones formation. Currently, the importance of nonclostridial anaerobes in pathophysiology of staghorn stones is not determined.
Materials and Methods: Urine samples for bacteriological examination were obtained from 101 patients (age 50.4±5.9 (25–73)) from the Southern part of Russia with staghorn calculi. The primary stones were found in 62.9% patients, recurrent nephrolitiasis was seen in 37.1% cases. Of patients, 58.4% were residents of mountainous areas, and 41.6% lived on the plains - 41.6%. All patients had undergone percutaneous nephrolithitomy. Medium Blaurokk, Shaedler Agar and Schaedler broth, Bacteroides Bile Esculin Agar for quantitative determination of bacteriuria and isolation anaerobes were used. The stone composition was determined using X-ray phase analysis.
Results: In 89.5% cases bacteriuria was determined (table 1). Mean level of aerobic and anaerobic bacteriuria was 10^4 CFU/ml and 10^3 CFU/ml, respectively. In 78% the different bacterial association was isolated. Nonclostridial anaerobes included Peptostreptococcus sp., Pe tococcus sp., Veillonella sp., Propionibacterium sp., Eubacterium sp. In all cases, nonclostridial anaerobes in combination with other aerobes and anaerobes were found. In recurrent nephrolithiasis significant increase of the urea-splitting microorganisms and nonclostridial anaerobes levels ($p<0.05$) and decrease of incidence of Gram-positive bacteria was determined. In recurrent nephrolitiasis in most cases nonclostridial anaerobes in combination with apatite (40%) and whewellite (30%) were seen. In 28.8% cases residual stones were found, while in patients with nonclostridial anaerobes significant increase of residual calculi was found. X-ray phase analysis revealed that chemical composition of residual calculi in patients with nonclostridial anaerobes contained predominantly apatite (35.8%) and whewellite (35.8%).
Conclusions: In the majority of patients with staghorn calculi mixed bacteriuria was seen. In recurrent and residual nephrolithiasis incidence of nonclostridial anaerobes was significantly higher, compared to primary nephrolithiasis. Numerous virulence factors of nonclostridial anaerobes can influence on phosphate (apatite) and oxalate (whewellite) stagborn calculi formation.

MP-03.02, Table 1.

Microorganism	Primary cases	Recurrent stones	Plain area	Mountainous area	Residual stones
Gram-positive bacteria, %	45.0	26.3	47.8	30.8	33.4
Urea-splitting, %	27.5	36.8	26.1	46.2	29.2
Nonclostridial anaerobes, %	15.0	26.3	15.2	23.1	29.2
Gram-negative bacteria, %	7.5	10.6	6.5	0	4.1
Fungus, %	5.0	0	4.3	0	4.1

MP-03.03
Antigen-Specific Induction of Thrombin-Cleaved Form of Osteopontin Contributes to Inhibit Renal Stone Formation
Hamamoto S, Yasui T, Okada A, Niimi K, Tozawa K, Kohri K
Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan

Introduction and Objective: Osteopontin (OPN) is known to play a crucial role in the formation of renal calcium crystals; however, the molecular mechanism by which OPN regulates crystal formation has not yet been elucidated. We have previously shown that the impaired RGD sequence of osteopontin inhibits renal crystal formation by using OPN-transgenic mice and OPN-knockout mice. Renal crystals in mice are sporadically detected in renal tubular cells of the corticomedullary junction where thrombin-cleaved OPN expression is coincidentally localized; however, the expression of full-length OPN is widely distributed in the whole kidney. Here, we investigated the effects of an anti-murine OPN antibody (35B6-Ab) that specifically reacts with the ^{162}SLAYGLR^{168} sequence, which is exposed by thrombin cleavage and is located adjacent to the RGD sequence, on renal crystal formation.
Materials and Methods: Monoclonal anti-OPN antibody 35B6 (IgG1) was obtained by immunizing mice with the synthetic peptide VDVPNGRGDSLAYGLR corresponding to the internal sequence of murine OPN. The ability of 35B6-Ab to alter the adherence of calcium oxalate monohydrate (COM) crystals to MDCK cells in vitro was evaluated. To examine whether intraperitoneal administration of 35B6-Ab (250, 500, and 1,000 μg per mouse) exerts a prophylactic effect on renal crystal formation in mice, renal crystal formation induced by glyoxylate injection was demonstrated by polarized light optical microphotography, scanning electron microscopy (SEM), and transmission electron micrographs (TEM).
Results: In an *in vitro* experiment analyzing radiolabeled oxalate data, 35B6-Ab significantly inhibited the attachment of renal crystals to renal tubular culture cells. 35B6-Ab also inhibited renal crystal formation in a dose-dependent manner in a mouse model. Scanning electron microscopy showed that crystals were cracked and became fine. The density of crystals was low in 35B6-Ab-treated mice, in contrast to the high density of crystals having a radial pattern of growth (rosette petal-like crystals) in untreated mice. Control mice without 35B6-Ab showed collapsed mitochondria in the flattened cytoplasm of renal tubular cells, when compared with the corresponding structures in 35B6-Ab-treated mice, in which renal tubular cell injury was inhibited in a dose-dependent manner.
Conclusions: We concluded that thrombin-cleaved OPN plays an important role in the formation of renal calcium crystals, and that 35B6-Ab significantly suppresses crystal formation. (2159)

MP-03.04
Influence of Terrain on the Chemical Structure of the Staghorn Stones from Inhabitants of the Southern Region of Russia
Kogan M, Hasigov A, Belousov I, Shiranov K
Dept. of Urology, Rostov State Medical University, Rostov-On-Don, Russia

Introduction and Objective: Factors, which cause differences in chemical composition of staghorn stones in the different area all over the world, are known, but no such study was performed in South Region of Russia (North Caucasus – mountainous and plain area).
Materials and Methods: Chemical composition of 112 stagborn calculi from residents of Southern Russia was evaluated using X-ray phase analysis. Patient's age was 50.2±5.6 (25-73) years. Primary neprolithiasis was seen in 62.5% patients, and recurrent stones were found in 37.5%. Of the patients, 58.9% were residents of mountainous areas, and 41.1% lived on the plains - 41.6%.
Results: Chemical composition of the stones is shown in table 1. In 62.9% cases the compound structure was found, with predominance incidence of two-component combinations, such as apatite/whewellite - (16.1%), apatite/witlockite- (8.1%), and apatite/uric acid calculi (8.1%). Evaluation of the recurrent calculi showed significant increase of apatite and whewellite calculi and significant decrease of uric acid stones, compared to primary cases ($p<0.05$). Comparison of inhabitants of the mountainous and plain areas showed the different chemical structure of the stones, as follows: in chemical composition of recurrent stones in mountainous area's patients phosphate (apatite) and oxalate (whewellite) were predominant type and there was no uric acid stones, while in plain area patients, in addition to apatite stones, uric acid calculi was also found. Struvite stagborn calculi were seen only in mountainous area patients. After performing percutaneous nephrolitiasis stone-free rate was 71.4%. It is established that all residual calculi in inhabitants of mountainous area contained apatite and whewellite. Although, initially, magnesium was seen in minor concentration, sustainable role of struvite was determined. Predominate role of apatite nephrolithiasis in residual calculi in plain area patients was noted.
Conclusions: Correlation between chemical structure of calculi and topography of residence area was shown. Recurrent and residual calculi in residents of the mountainous area were found to have direct association with oxalate and inverse association with uric acid stones ($r=0.56$; $p<0.001$). Recurrent and residual uric acid and struvite stones were seen only in residents of the plain and mountainous areas, respectively.

MP-03.05
Macrophage-Colony Stimulating Factor (M-CSF) Is a Novel Preventive Agent Against Renal Stone Disease by Inducing Anti-Inflammatory Macrophages
Taguchi K, Okada A, Fujii Y, Niimi K, Hamamoto S, Hirose M, Yasui T, Tozawa K, Hayashi Y, Kohri K
Nephro-Urology, Nagoya City University

MP-03.04, Table 1.

	Primary		Recurrent		Residual	
	Mountainous area	Plain	Mountainous area	Plain	Mountainous area	Plain
Uric acid,%	58.3	71.4	0	75.0	0	33.2
Weddellite,%	8.3	14.3	0	25.0	0	0
Whewellite,%	16.7	42.8	80.0	50.0	100	33.2
Apatite,%	41.7	42.8	80.0	75.0	100	66.7
Struvite,%	16.7	0	20.0	0	66.7	0

Graduate School of Medical Sciences, Nagoya, Japan

Introduction and Objective: Macrophages are related to metabolic syndrome, and considered as promotional factor. There are some reports macrophages play not only an inflammatory role but also anti-inflammatory role. We have reported that macrophages were related to stone formation in a microarray study and an interesting phenomenon involving the spontaneous elimination of renal crystals. We speculated there was some correlation between this phenomenon and macrophages. We investigated renal macrophage functions in order to clarify their anti-inflammatory effect for stone formation using macrophage-colony stimulating factor (M-CSF)-deficient mice.
Materials and Methods: We divided eight-week-old male M-CSF-deficient mice into 3 groups: wild type (+/+), homozygous (op/op), and homozygous injected with M-CSF (op+CSF). They were administered 80mg/kg glyoxylate by daily intraabdominal injection, and the kidneys were extracted to examine crystal formation, at days3, 6, 9, 12, 15. We performed CD68 and CD163 staining to evaluate the expression of renal macrophages. CD68 was used for detection of inflammatory macrophages whereas CD163 for anti-inflammatory ones. Both crystal and macrophage formations were evaluated with scanning electron microscopy (SEM) and transmitted electron microscopy (TEM). Expression of inflammation-related genes was examined by immunohistochemistry (IHC) and quantitative reverse transcriptase polymerase chain reaction (qPCR).
Results: The number of renal crystals in op/op was markedly higher composed to +/+. Crystal formations were detected in the cortical-medulla region in +/+ whereas crystals were detected in the papilla in op/op. SEM showed crystals were rough and larger size in op/op than +/+. IHC and qPCR showed high expression of osteopontin and CD44 but low expression of CD163 in op/op. After injection of M-CSF, the amount of stones in op+CSF was markedly decreased than op/op and it depended on the M-CSF concentration. Each gene expression in op+CSF returned to same level as in +/+. Furthermore, TEM revealed crystals were phagocytosed by anti-inflammatory macrophages in the cortical-medulla region, except for op/op.
Conclusions: Our study suggests that anti-inflammatory macrophages play a major role in defense against crystal formation by elimination in the renal interstitial space. We indicate that M-CSF could become a novel medicine for prevention of stone disease by inducing anti-inflammatory macrophages.

MP-03.06
Adiponectin Ameliorates Kidney Stone Formation in Metabolic Syndrome Model Mice
Fujii Y, Okada A, Kobayashi T, Usami m, Hamamoto S, Hirose M, Yasui T, Itoh Y, Tozawa K, Kohri K
Dept. of Nephro-Urology, Nagoya City University Graduate School, Nagoya, Japan

Introduction and Objective: Kidney stone formation has been recognized as a metabolic syndrome (MetS)-related disease. The aims of the present study were to elucidate a possible mechanism of kidney stone formation under MetS conditions by using MetS mouse model and to assess the effectiveness of adiponectin (APN) treatment for the prevention of kidney stone. Further, we performed genome-wide expression analyses to detect genes related to kidney stone.
Materials and Methods: Wild-type (+/+) and ob/ob mice (having a disorder in which to produce leptin) were administered daily doses of 50 mg/kg glyoxylate (GOx) for 6 days. To prevent kidney stone formation, exogenous APN treatment (2.5 μg/ml, 0.1 ml) was administered daily. At day 0 and 6, their kidneys were extracted. A genome-wide microarray analysis was performed to extract genes related to the MetS-related kidney stone formation and genes associated with the prevention of APN-related kidney stone. The genes with significant expression values were sorted by the Venn diagram function of the microarray software GeneSpring® GX11.0. Gene ontology (GO) analyses were performed on the extracted genes to hypothesize the mechanisms of MetS-derived kidney stone formation and APN treatment.
Results: The only ob/ob mice showed crystal depositions in their renal tubules. Expression analysis of genes associated with MetS-related kidney stone formation identified 259 genes that were >2.0× up-regulated and 243 genes that were <0.5× down-regulated. GO analyses revealed that the up-regulated genes belonged to the categories of immunoreaction, inflammation, and adhesion molecules. The down-regulated genes belonged to the categories of oxidative stress and lipid metabolism. Expression analysis of APN-induced genes related to stone prevention revealed that the numbers of up- and down-regulated genes were 154 and 190, respectively. GO analyses indicated that the up-regulated genes belonged to the categories of cellular and mitochondrial repair, whereas the down-regulated genes belonged to the categories of immune and inflammatory reactions and apoptosis.
Conclusions: Collectively, kidney stone formation in the MetS environment involves the progression of an inflammatory and immunoresponse, including oxidative stress and adhesion reaction in renal tissue. Further, this study showed that APN treatment prevented kidney stone formation by inhibition of inflammation and apoptosis.

MP-03.07
Is Hypertension Associated with Increased Urinary Calcium Excretion in Patients with Nephrolithiasis?
Drasa K[1], Bara P[2], Katroshi R[3], Xhixha A[4]
[1]Dept. of Urology, Central Polyclinic, Tirana, Albania; [2]Dept. of Cardiology, High Fac. of Nursing, Tirana, Albania; [3]Dept.Of Urology, Hospital of Durres, Durres, Albania; [4]Public Health Directory, Tirana District, Albania

Introduction and Objective: The epidemiological relationship between nephrolithiasis (NL) has been investigated in details in the last 25 years and is well–known. Several studies show an increased risk of incident NL in patients (pts) with hypertension (HT) while others reveal an increased risk of HT in those with NL. We examined the relationship between HT and 24–hour urine composition in pts with NL.
Materials and Methods: We retrospectively reviewed a database of 24-hour urinalysis. Pts who presented for an initial metabolic stone assessment and were 18 years old or older, were identified and included in the study. Outpatient clinic and hospital records and 24 hours uric composition data were analyzed. BMI was calculated in kg/m2 from self reported pts height and weight at 24 hour urine collection. Pts were categorized with HT in they met 2 criteria, including 1) HT was listed in the medical history of the medical records and 2) they were on at least 1 anti- hypertensive medication, eg ß-blocker, calcium channel blocker, thiazide, angiotensin converting enzyme inhibitor or angiotensin II receptor blocker. Nominal logistic regression was also done to examine the HT prevalence by quintile of calcium and citrate excretion. Pts were excluded from study if BMI or

medical history could be not be obtained or 24-hour urine collection was deemed inadequate.
Results: Of 148 pts analyzed, 51 (34.5%) had a baseline diagnosis of HT and 97 (65.5%) did not. HT pts were older (mean age ±SD 57.3 ± 10.7 vs 47.5±11.6 yrs, p<0.001) and had greater BMI (27.7 ±5.1 vs 25.9± 5.9 kg /m2 ,p=0.003). On adjusted multivariate analysis compared with normotensive stone formers those with HT excreted 26.2 mg per day more urine calcium, corresponding to a 13 % increase in urinary calcium excretion. The relative risk of HT was significantly associated with quintile of calcium excretion but not with quintile of citrate excretion (1.27,95 % CI, 1.03 to 1.63 vs 0.93, 95%CI , 0.79 to 1.16).
Conclusions: These findings suggest a potential common physiological pathway linking the 2 diseases. In pts with NL-HT appears to be related to increased urinary calcium excretion but not to urinary citrate excretion. This association is important when treating pts with NL since those with HT may require unique dietary and medical therapy.

MP-03.08
Positive Associations of Current and Past History of Kidney Stones with Overweight, Hypertension, Hyperuricemia and Chronic Kidney Disease in a Screened Population
Ando R[1,2], Nagaya T[3], Suzuki S[3], Okada A[2], Yasui T[2], Tozawa K[2], Takahashi H[4], Kawai M[4], Kohri K[2]
[1]Dept. of Urology, J.A. Aichi Anjo Kosei Hospital, Anjo, Japan; [2]Dept. of Nephro-Urology, Nagoya City University Graduate School of Medical, Nagoya, Japan; [3]Dept. of Public Health, Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan; [4]Gifu Prefectural Center For Health Check and Health Promotion, Gifu, Japan

Introduction and Objective: The aim of this study is to examine the association of kidney stones with risk factors for chronic kidney disease (CKD) and cardiovascular disease (CVD) in a screened population.
Materials and Methods: In this cross-sectional study, 20,990 Japanese who underwent general health screening tests were examined between April 1995 and March 2001. Participants were divided into three groups (control, past, and current kidney stone groups) based on ultrasonography (US) findings and medical histories. Variables were compared between the three groups. Logistic regression analysis was used to estimate the odds ratio (OR) and 95% confidence intervals (CI) for overweight, obesity, hypertension, diabetes mellitus, hyperuricemia, dyslipidemia and CKD across three groups.
Results: Of the participants, 512 (2.4%) had kidney stones on US and 1,521 (7.3%) had past history of kidney stones, but without kidney stones on US. Systolic and diastolic blood pressures and serum uric acid level were significantly higher in past and current kidney stone formers than in control after age and sex adjustment. In past kidney stone former, multivariable adjusted ORs (95% CI) for overweight, hypertension and hyperuricemia were 1.25 (1.10-1.42), 1.34 (1.18-1.52) and 1.35 (1.18-1.55), respectively. In current kidney stone former, multivariable adjusted ORs (95% CI) for overweight, hypertension and hyperuricemia were 1.17 (0.95-1.45), 1.63 (1.33-1.99) and 1.58 (1.27-1.97), respectively.
Conclusions: Preventative health care interventions targeted for current and past kidney stone formers toward decreasing weight, blood pressure and serum UA levels could decrease the risk of CKD and CVD.

MP-03.09
Assessment of Glomerular Filtration Rate Changes after Percutaneous Nephrolithotomy and Determining the Possible Risk Factors for Postoperative Acute Renal Failure
Tabibi A, Khazaeli M, Modir A, Nabavizadeh P, Lashay A, Khazaeli D, Soltani M
Shaheed Labbafi Nejad Medical Center, UNRC, SBMU, Tehran, Iran

Introduction and Objective: To investigate the Glomerular Filtration Rate (GFR) changes during and after Percutaneous Nephrolithotomy (PCNL) and determining the possible risk factors for postoperative Acute Renal Failure (ARF).
Materials and Methods: There were 486 patients who underwent PCNL from January 2009 to January 2010 included and their information assessed retrospectively. GFR at six hours, one, two and three days after PCNL and at the discharge day were calculated according to Cockraft-Gault formula and the changes were compared with preoperative value. Correlation between multiple variables (hemorrhage, diabetic mellitus, uncontrolled hypertension, number of access, stone burden, body mass index and some other variables) and the risk of postoperative ARF were analyzed. Patients with a single kidney were excluded from this study.
Results: Mean preoperative GFR was 87.85±29.41 ml per minute per 1.73 m^2 which decreased to 86.18±28.77, 78.45±28.74, 78.79±26.94, 82.24±29.71 and 82.44±31.82 ml per minute per 1.73 m^2 at 6 hours, one, two, three days and the discharge day post PCNL, respectively. GFR significantly decreased postoperatively at one and two days after surgery (p value <0.0001 and p value =0.0035) but returned to preoperative values at the discharge day. Among the different possible variables that may be contribute to ARF occurrence after PCNL, only perioperative hemorrhage and hemoglobin drop were significantly concomitant with ARF.
Conclusions: It seems that, compatible with the previous reports, PCNL can be performed with safety and efficacy in patients with large or multiple stones and coexisting medical problems such as diabetes mellitus and hypertension and changes of postoperative GFR return to nearly similar values of preoperative GFR a few days after operation. Important point to decrease the AFR rate after PCNL is avoidance of significant bleeding and hemoglobin drop.

MP-03.10
Upper Urinary Tract Calculus Is the Highest Risk for Nephrectomy for Non-Renal Tumor Patients: A Single Center Study Over 10 Years
Mao S, Jiang H, Wu Z, Fang Z, Xia G, Ding Q
Dept. of Urology, Huashan Hospital, Fudan University, Shanghai, China

Introduction and Objective: The existence of upper urinary tract calculus may cause complete loss of renal function which eventually results in nephrectomy. To describe the prevalence and clinical characteristics of upper urinary tract calculus cases among a series of nephrectomized patients during 10 years.
Materials and Methods: The data of 1,059 nephrectomized patients between January 2001 and December 2010 in our center were reviewed. The prevalence and clinical characteristics of upper urinary tract calculi derived non-functioning kidney were analyzed.
Results: Among 1,059 patients, 177(16.7%) ones were non-functioning kidneys, which were second to renal tumor cases (801, 75.6%). Upper urinary tract calculi accounted for the most cause (101, 57.1%) in these non-functioning kidney cases. These patients were mainly screened by ultrasound and confirmed by CT, IVU and nuclear renography. There were 48(47.5%) males and 53(52.5%)

females (compared with urolithiasis gender-different incidence, P < 0.05). The mean age was 52.2±12.7 (15-74 years) including 50.7±12.0 in males and 53.4±13.3 in females (P > 0.05). There were 44(43.6%) patients with single renal stone in ureteropelvic junction, 36(35.6%) with single ureteral stone and 21(20.8%) with multiple unilateral renal and ureteral stones. The average size of renal stones and ureteral stones were 15.6±8.8mm (4-50mm) and 13.4±4.0mm (4-21mm) in diameter respectively. Prevalence of urolithiasis derived non-functioning kidney had not changed significantly during 10 years even showed a slight increase. Most of the stones were more than 10mm in diameter. The females or patients in low living standard were more likely to develop non-functioning kidney.
Conclusions: Prevalence of urolithiasis derived non-functioning kidney had not changed significantly. Patients with middle age, female gender, low living standard and upper urinary tract calculus (> 10mm) were more at risk to develop non-functioning kidney. Regular urinary system health examination is recommended. Routine follow-up of urolithiasis is also recommended for patients with stone history to prevent renal dysfunction.

MP-03.11
Clinical Outcomes in Management of Calculus Anuria Using Ureteroscopy
Savic S, Vukotic V, Lazic M, Savic N
Hospital Dr. D. Misovic, Belgrade, Serbia

Introduction and Objective: We reviewed our experience with emergency ureteroscopy (URS) for ureteral calculi that was associated with acute kidney injury (AKI).
Materials and Methods: We retrospectively evaluated the 59 patients /86 ureteral units (UU)/ who underwent URS for AKI: the cause of anuria was bilateral obstruction by the calculi in 27 cases, unilateral obstruction with /absent/ nephrectomised contralateral kidney in 32 cases. In the case of bilateral synchronous ureteric calculi bilateral same-session ureteroscopy (SSBU) was done. A standard diagnostic algorithm was used before and after procedure. A semirigid ureteroscope was used in all cases and intracorporeal lithotripsy with electrokinetic energy was performed. The duration of anuria varied between 12 to 72 hours. In all patients surgery was performed 6-12 hours after admission to hospital. Ureteral stent placement was performed in all cases after lithotripsy/bilateral after SSBU. Patients were followed at least 1 month postoperatively.
Results: The mean operative time was 26 minutes. The mean stone size was 9mm. The stone-free rate (SFR) were determined as initial – on the first post operative day—and as overall on the 30 days after procedure. SFR were observed according stone diameter and stone localization. The greatest success was achieved in the distal localization of stones up to 10mm. Normal renal function returned in 49(83%) patients within 7 days. In 18.6% of UU we performed a second procedure/ SWL -16.3% or open surgery- 2.3%/. In 43 (73%) patients URS is successful therapeutic approach in dealing with: pain, obstruction and calculus.
Conclusions: Calculus anuria is a medical emergency that requires rapid diagnosis and prompt treatment for the purpose of decompression.URS is the proper method of choice for selected patients and can be performed safely and has high success rates with minimal morbidity

MP-03.12
Factors Affecting Stone-Free Rate after SWL: Relationship with Inflammation
Yu J, Sung L, Noh C, Chung J
Dept. of Urology, Sanggye Paik Hospital, Inje University, Seoul, South Korea

Introduction and Objective: We assessed factors, including presence of pyuria or leukocytosis, which would affect the stone free rate after shock wave lithotripsy (SWL).
Materials and Methods: Between Jan 2004 and Dec 2008, 392 patients had SWL in situ for proximal ureteral calculus; they were reviewed retrospectively. Patients requiring simultaneous treatment of kidney stone, placement of a double pigtail stent, or percutaneous pigtail nephrostomy tube were excluded. Also, patients with radiolucent stone, multiple ureteral stones and who had SWL more than 3 times but no significant change found on plain radiography were excluded. The patients followed up with plain radiography. The size of a calculus was calculated by adding the major axis and the minor axis of the stone on plain radiography and dividing the sum into two. The renal function index used was MDRD (Modification of Diet in Renal Disease) GFR. Stone free status was defined as no visible stone fragments on a plain abdominal film at 1 month after SWL. Univariate and multivariate analysis were performed on known several factors especially including the presence of pyuria and WBC count, that might affect the stone-free rate.
Results: Average stone free rate for proximal ureteral calculi was 80.1%. The stone free rate was 82.3% in patients without pyuria and 69.5% in those with pyuria (P=0.02). In addition, the stone free rate was 88.2% in patients with normal range WBC count and 48.1% in those with leukocytosis (WBC count≥10000) (P<0.001). On univariate and multivariate analysis, stone size (OR: 0.729(0.622-0.853), p<0.001), eGFR (OR: 1.086(1.056–1.118), P<0.001), leukocytosis (OR: 0.128(0.062-0.267), P<0.001), and the presence of pyuria (OR: 0.383(0.176-0.832), P=0.015) were significant factors for stone free rate after SWL. On Comparison of ROC curves, there were no significant differences among stone size, eGFR, and leukocytosis, but there was significant difference in the presence of pyuris.
Conclusions: A stone size of 5mm, eGFR ≥60.66 and leukocysotis (≥7740) were significant predictors affecting the stone-free rate after SWL for proximal ureteral stone. Also, the presence of pyuria is one of the predictors for stone-free rate after SWL.

MP-03.13
'Double 'J' Silicon Stent: A Word of Caution in Urological Practice: Experience from High Stone Forming, High Congenital Anomaly Area of Jizan, Saudi Arabia
Jha A, Al Faifi H
Dept. of Urology, King Fahd Central Hospital, Jizan, Saudi Arabi

Introduction and Objective: In a retrospective study of 22 years (1988–2010), we studied 508 cases of stents, put in our hospital with available records for wide ranging procedures, and interesting observations were made. Our aim is to evaluate common complications met with, suitable corrective measures applied and recommendations made.
Materials and Methods: Of 508 cases with stent age-wise presentation: Range 1 month to 92 years (mean – 58.6 yrs). Duration of stent: 7 days to 3.5 years (mean=1.8 months), Pathology / procedure-wise – ureterocele fulgeration: N56, (11.4%), post pyeloplasty: N86 (16.07%), ureteroneocystostomy N46 (7.9%), V.V.F. repair: N21 (3.7%), iatrogenic gynecological ureteric injury: N36 (6.02%), bilharziasis: N22 (3.8%), tuberculosis: N2 (0.03%), retroperitoneal fibrosis: N2 (0.03%), PCNL: N16 (2.6%), ureteroscopy with US/ Holmium laser lithotripsy: N26 (5.3%),

ureterolithotomy: N42 (7%), pyelolithotomy: N62 (12.02%) post-cystectomy diversion: N29 (5.01%), miscellaneous obstructive: pre ESWL. renal stone, stein strasse, and ureteric obstruction: N62 (12.02%).
Results: Stent Related Complications and Treatment

1. Hard stone formation N6 (1.1%) – all recurrent stone formers of duration 6m– 3.5 years (lost to follow-up) – needed repeated E.S.W.L. and open operation in 2 cases.
2. Struvite stone N16 (2.9%) – Of all stone formers (duration mean: 4.2 months)
3. Minor encrustation – N82 (10.4%) – (5.2% stone formers – mean duration – 3.2 months)
4. Disintegration – N3, duration 1 – 3 years, needing open surgery in 2 due to obstruction.
5. Stent calcification – N4 – 1 – 3.5 years, E.S.W.L. / endoscopy in 3, 1 open procedure.
6. Infection – no major problem, easily treatable bacterial except one fungal mucormycosis treated with difficulty.

Conclusions: A universally-applied, safe useful procedure. In over 97.3%, no significant problem, successful endoscopic removal P<0.001%. Considerable problem in 2.4% - needing ESWL, pyelolithotomy, ureterotomy, etc. especially with cases with long duration, recurrent stone former and lost follow-up cases despite tough protocol. Recommendation: Caution, tough protocol, patient information, strict follow-up duration (less than 3 – 6 months especially in recurrent stone formers), avoiding unnecessary stenting in non-obstructive, small renal stones pre-E.S.W.L (<1.5 cm x 1.5 cm stones prior to E.S.W.L.) is the key to success.

MP-03.14
Combination of Anticholinergics (Tolterodine) and Selective Alpha-Blocker (Tamsulosin) to Improve the Urinary Symptoms Associated with Indwelling Double J Ureteral Stent
Shelbaia A[1], **El Nashar A**[2], Khiry H[1]
[1]Cairo University, Cairo, Egypt; [2]Suez Canal University, Ismailia, Egypt

Introduction and Objective: We conducted a prospective placebo controlled study comparing the effect of tamsulosin, tolterodine or combination of both drugs versus placebo in improving the urinary symptoms associated with indwelling double J ureteral stent after ureteroscopy.
Materials and Methods: There were 80 patients (who underwent ureteral stent placement) with a mean age 33.4+9.9 years enrolled prospectively into 4 groups. Group A (n=20), patients received 0.4 mg tamsulosin once per day.
Group B (n=20), patients received 4mg tolterodine once per day.
Group C (n=20), patients received tamsulosin 0.4 mg +tolterodine 4 mg once per day.
Group D (n=20), patients received analgesics on demand (controlled group).
For all patients, storage symptoms; voiding symptoms and international prostatic symptoms scores (IPSS) were compared at base line (day 1), day 7 and day 14, and the results were compared between the four groups.
Results: We found that the baseline scores for storage; voiding and IPSS did not differ significantly in the 4 groups (p>0.05). At day 7, the same scores were significantly lower in group A, B and C in comparison to group D (placebo). The improvement in the symptoms was better in group C in comparison to group A or B alone. At day 14 ,only the storage symptoms and IPSS were still significantly lower in group A,B,C than placebo, and the effect was evident in group C in comparison to A or B alone. No significant difference was noted between group A, B at day 7 or day 14.
Conclusions: The results of this study suggest that combination of alpha blockers (tamsulosin) and anticholinergics (tolterodine) has positive effect in improving the urinary symptoms associated with indwelling double J ureteral stent. The combination of both drugs is better than either drug alone.

MP-03.15
Role of BioR as Adjunctive Therapy Following Nephrolithotomy
Ceban E, Banov P, Ghicavii V, Tanase A, Oprea A
Dept. of Urology and Surgical Nephrology, State University of Medicine and Pharmacy Nicolae Testemitanu, Chisinau, Republic of Moldova

Introduction and Objective: It was demonstrated by many studies the effectiveness of immunomodulatory medicine BioR (spirulina). Initially we aimed to perform the same study to assess the immunological effects of adjunctive therapy with BioR in postoperative management of Chronic Calculous Pyelonephritis in staghorn or multiply complicated stone disease. Therefore the renal function recuperation after nephrolithotomy (NL) in this group of patients additionally was interested in. Hereby, it was evaluated and we compared the renal function changes in patients who underwent NL for complicated kidney stones disease with chronic pyelonephritis treated postoperative standard versus standard with adjunction of Bior.
Materials and Methods: A study was performed on 78 patients with staghorn nephrolithiasis or complex lithiasis who underwent nephrolithotomy, for whom it was indicated, between January 2008 and April 2012 in our urological department. The presence of nephrolithiasis was assessed by ultrasound and/or radiological examination of the kidneys and upper urinary tract. Patients were divided in two groups: 38 patients in which standard medical postoperative treatment were performed and 40 patients who were offered standard therapy with adjunction of BioR (ampull. 0,5% - 1 ml i/m QD – 10 days, caps. 5 mg BID – 30 days). All patients underwent a dynamic renal radioisotope scan using 99m Tc DTPA to quantify the total and split renal functions, and estimate the glomerular filtration rate (GFR). Patients were analyzed for age, sex, body mass index, body surface, creatinine and GFR (total and split) prior and 6 months after surgery, prior stone treatment, concomitant diseases and possible side effects of medication were observed. Study exclusion criteria: associated morbidity (cardiovascular diseases, chronic kidney diseases, diabetes mellitus etc.).
Results: All patients completed the study and none were excluded due to side effects. No significant differences were found between the groups for age, gender, stone size, preoperative total and split GFR, etc. There were non-significant changes between preoperative GFR (total – 88,7±22,5 ml/min/1,73m2, involved kidney - 65,4±22,1 ml/min/1,73m2) and postoperative (total – 93,4±20,7 ml/min/1,73m2, involved kidney - 69,8 ± 20,6 ml/min/1,73m2) in the group of patients that underwent standard postoperative therapy. The significant increase of total and split GFR was obtained in group with adjunction of BioR (total - from 86,8±20,5 to 98,4±21,1 ml/min/1,73m2, p <0,05; involved kidney – from 64,5±19,8 to 78,6±22,4 ml/min/1,73m2, p<0,01, pre- and postoperative respectively [t-test]).
Conclusions: The adjuvant therapy with BioR allows increase renal function after nephrolithitomy in patients with staghorn or complex nephrolithiasis and prevents renal function impairment. The BioR demonstrated no clinically significant adverse effects, while proving to be a safe and effective treatment option.

MP-03.16

Association Between Nephrolithiasis Incidence and Nutrition Based on Data from a Japanese National Survey

Yasui T[1], Okada A[1], Niimi K[1], Hamamoto S[1], Kobayashi T[1], Hirose M[1], Itoh Y[1], Tozawa K[1], Iguchi M[2], Kohri K[1]

[1]Dept. of Nephro-Urology, Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan; [2]Dept. of Urology, Kaizuka City Hospital, Kaizuka, Japan

Introduction and Objective: Continuing surveys in Japan reveal fixed variations in nephrolithiasis incidence among geographic regions. To clarify the association between regional variations in nephrolithiasis incidence and nutrition intake, we evaluated associated data from Japanese national surveys.

Materials and Methods: The incidence of nephrolithiasis in 12 regions of Japan was calculated from 2005 patient data obtained from 430 hospitals (n = 92,797). Nutrition intake data were obtained from the National Health and Nutrition Survey, conducted for each region by the Japanese Ministry of Health, Labour and Welfare. We examined the association between nephrolithiasis incidence and average intake of various types of food (cereals, potatoes, sugars, legumes, vegetables, fruits, seafood, meat, eggs, etc.) or nutrients (proteins, lipids, carbohydrates, salt, potassium, calcium, vitamins, etc.) by region.

Results: The national average of patients with nephrolithiasis was estimated as 203.1 per 100,000 citizens. Compared with this national average, the incidence of nephrolithiasis was higher in South Kyushu and Kinki but lower in Tohoku and Kanto, similar to results from previous surveys. Regarding food, intake of fruit correlated negatively with the incidence of nephrolithiasis ($r = -0.721$, $p = 0.008$) while intake of eggs ($r = 0.537$, $p = 0.072$) and sugar ($r = 0.475$, $p = 0.119$) tended to positively correlate with incidence. Regarding nutrients, intake of potassium ($r = -0.500$, $p = 0.098$), vitamin K ($r = -0.562$, $p = 0.057$), and pantothenic acid ($r = -0.560$, $p = 0.058$) tended to negatively correlate with incidence.

Conclusions: The incidence of nephrolithiasis is higher in geographic areas with populations having low fruit and high sugar intake. The recommendation of increased fruit intake for individual patients may help prevent nephrolithiasis.

MP-03.17

Chronic Kidney Disease after Urolithiasis Treated Successfully by Shock Wave Lithotripsy Is Strong Risk Factor for Cardiovascular Disease

Iguchi T[1], Kita K[2], Kamada Y[3], Yamasaki T[1], Tamada S[1], Naganuma T[1], Uchida J[1], Kuratsukuri K[1], Kawashima H[1], Nakatani T[1]

[1]Osaka City University Graduate School of Medicine, Osaka, Japan; [2]Bellland General Hospital, Sakai, Japan; [3]Ikuwakai Memorial Hospital, Osaka, Japan

Introduction and Objective: We have reported that urolithiasis even treated by Shock wave lithotripsy (SWL) caused chronic kidney disease (CKD) after long follow-up. CKD is now well known as a strong risk factor of cardiovascular disease (CVD), but it is still unclear whether the CKD caused by urolithiasis associate with CVD. Therefore, we investigated the estimated GFR of patients treated by SWL after long-term follow-up and the association between CKD caused by urolithiasis and CVD.

Materials and Methods: Two hundred and one patients with urolithiasis (renal calculi: n=102, ureteral calculi: n=99) were treated by SWL with MPL-9000 or Lithotripter D (Dornier Medical Systems) between 1994 and 2005. They were followed up by consistent laboratory examination even after being stone-free and investigated their CVD-related health history such as myocardial infarction (MI), angina pectoris (AP) and hypertension (HT). Estimated GFR was calculated by the formula specified for Japanese by Japanese Society of Nephrology in 2008.

Results: Mean age at SWL was 56.4 ± 11.3 years old. During a mean of 9.8 ± 3.8 years of follow-up, eGFR was significantly reduced (75.9 ± 19.6 to 63.8 ± 21.6) and the mean annual change in eGFR of the patients was -1.21 ± 1.91 mL/min/1.73 m^2/year, which is much larger than Japanese standard change in eGFR (-0.4 mL/min/1.73 m^2/year). The ratio of CKD stage more than 3 is 46%, which is approximately 2.5-fold higher than that of standard adult Japanese (19%). CVD-related health history was found in 12 of AP/MI and 69 of HT. The eGFR of AP/MI (+) was lower than eGFR of AP/MI (-) (49.8 ± 6.5 vs 63.7 ± 1.5, $p<0.05$) and the eGFR of HT (+) was also lower than that of HT (-) (54.7 ± 2.3 vs 67.1 ± 1.9, $p<0.01$). AP/MI was more prevalent in CKD (+) than in CKD (-) (OR 6.96; 95% CI: 1.48 - 32.6) and HT was also more prevalent in CKD (+) (OR 6.05; 95% CI: 3.18 - 11.5).

Conclusions: Our findings suggest that urolithiasis even treated successfully by SWL caused CKD, which is strong risk factor for CVD and HT.

MP-03.18

Evaluation of Urinary Stone Composition by Helical Computerized Tomography Scan

Gooran S, Rohani Z, **Shovey M**, Akhgar S, Fazeli F, Yaghoubinia F

Zahedan University of Medical Science, Mashhad, Iran

Introduction and Objective: The management of stone disease may be facilitated by ascertaining the stone composition. The aim of this study is to *in vivo* assessment of the composition of the urinary calculi, using helical CT scan.

Materials and Methods: This study was conducted on 120 urinary stones, obtained from the patients operated for urinary stone disease between Jun 2007 and Jan 2010. The stones were placed into the chicken meat and then viewed with helical CTs (Toshiba Astenon), based on flank pain protocol (12kv, 240ma, 3mm collimation). The results were compared with chemical analysis of the same stones data were analysis with spss software.

Results: From 120 stones, 17 were uric acid, (mean density 680hu), 57 were calcium oxalate (mean density 1815hu), 27 were calcium phosphate (mean density 1745hu), 8 were mixed (mean density 850hu), 5 struvite (mean density 997hu) and 6 were cystin (mean density 1123hu). The differences in radio density of the stones were statistically significant. The management of calculus disease may be facilitated by ascertaining the stone composition.

Conclusions: We demonstrated that chemical composition of urinary stones could be predicted *in vivo*, using helical CTs. Knowing the composition of urinary stones may be a key factor in determining its appropriate management.

MP-03.19

Realising a New Model to Train Residents in Nephrostomy Tube Placement and PCNL

Bozzini G[1], Vismara R[2], Fiore B[2], Cipollini C[2], Ghilardi S[2], Picozzi S[1], Redaelli A[2], **Carmignani L**[1]

[1]Dept. of Urology, University of Milan, IRCCS Policlinico San Donato, San Donato, Italy; [2]Dept. of Biomedical Engineering, Politecnico Di Milano, Milan, Italy

Introduction and Objective: The efficacy of traditional operating room based

training of urology residents is being reevaluated. The development of hands-on models to facilitate the acquisition of skills by surgical residents lessens learning curves and hastens familiarity with tissue and instrument handling. We describe an innovative model for simulated percutaneous renal access and nephrolithotomy.

Materials and Methods: A new model released in non-biological material and reproducing the echoic layers of the human flank and the complete kidney was released. The model can be used several times only changing the internal cartridge representing a normal kidney, a dilated one and one filled with stones. Urology residents (25) were taught needle access with ultrasound probe help, tract dilation and renal access sheath insertion. Training in percutaneous nephrolithotomy with the nephroscope, graspers and stone fragmentation methods followed. The procedure was done also for the two models currently available on the market. At the end of the procedures residents fill up a satisfaction questionnaire.

Results: This simple, cost-effective model closely simulates percutaneous nephrosomy tube placement and nephrolithotomy. Anonymous evaluations submitted by training session participants revealed a high degree of satisfaction (8.2/10) with model effectiveness in the application of percutaneous renal access and nephrolithotomy techniques. The satisfaction for the other two models was poor (3.1/10 and 2.7/10).

Conclusions: Our model is an effective means of skills acquisition for a complex endourological procedure. The model, instead of the other two considered, can be used several times and lowers the costs. Patient care can safely be of secondary importance with respect to trainee experience in a low stress environment that provides an opportunity for supervised, repetitive performance of essential technical skills. We describe an effective percutaneous renal access and nephrolithotomy surgical training model of original design. Because of the non biological materials used it can be used everywhere with no need of a laboratory.

Moderated Poster Session 4
Minimally Invasive Surgery
Monday, October 1
13:15-14:45

MP-04.01
Cost Analysis of Robotic versus Open Partial Nephrectomy
Anastasiadis E, Fenner C, Begum F, Khan Y, Issa R, Anderson C
Dept. of Urology, St George's Hospital, London, UK

Introduction and Objective: Current trends show that Robotic Partial Nephrectomy (RPN) has become more feasible than the laparoscopic approach due to facilitation of renorraphy and reduced ischaemic times. Accepting this change in practice is hotly debated on clinical and economic grounds. We analyzed cost implications of RPN and compared with the open approach (OPN).
Materials and Methods: All data was recorded from a prospectively collected renal cancer database. Management staff provided financial spreadsheets. Costs of capital purchase were excluded.
Results: There 167 OPN and 29 RPN were compared. Mean tumour size was larger in OPN (P=0.0001) and imperative patients were more common in OPN (P=0.0471). A significant difference was observed in blood loss (P<0.0001), in blood transfusion (P<0.0001) and length of hospital stay (P<0.0001) in favour of RPN. Average theatre cost for OPN was £703.40 and RPN was £2470.41. Cost of mean hospital stay was £2316 (plus blood transfusion) and £1152 for OPN and RPN respectively. Therefore, total cost for OPN was £3019.40 and RPN £3622.41. Final analysis results in RPN being £603.01 more than OPN. Servicing would inflate RPN costs by an estimated £743.28.
Conclusions: We have shown that the cost of RPN is not excessive compared to OPN (before servicing and purchase costs) and should not be a deterrent to accepting this approach. Overall costs in servicing and purchase can be diluted by the use of robotics for multiple operations and if shared with other departments.

MP-04.02
Laparoscopic Suturing and Knot-tying Practice Exercises Using a Do-It-Yourself Angle Trainer before Performing Laparoendoscopic Single Site Surgeries
Arada E
Quirino Memorial Medical Center, Quezon City, Philippines

Introduction and Objective: Laparoendoscopic Single Site (L.E.S.S.) suturing and knot-tying are performed with instruments at angles of 12.5-degrees and 17.5-degrees. It helps to practice laparoscopic suturing and knot-tying in a Do-It-Yourself Angle Trainer, so called because exercises are performed at angles of 45-degrees, 25-degrees and 15-degrees respectively between straight needle-driver and grasper. The objective is to present a Do-It-Yourself Angle Trainer for practice exercises in laparoscopic suturing and knot-tying prior to L.E.S.S. Surgeries.
Materials and Methods: Readily available materials were used in making the Do-It-Yourself Angle Trainer. Materials used were: straight 5 mm needle-driver and 5 mm grasper each inserted through 5 mm trocar, 10 mm zero-degree laparoscopic telescope inserted through 10 mm trocar, 20 cm long 3-O Polyglycolic acid suture with HR26 needle and 2.5 cm x 5 cm penrose drain with 2 cm long incision line for suturing. Laparoscopic telescope was in central position between the instruments. The angle between each instrument (telescope, needle-driver, grasper) and the horizontal line (simulating horizontal patient lie) was less than 55-degrees. Timed exercises were performed at angles of 45-degrees, 25-degrees and 15-degrees respectively between each needle driver and grasper.
Results: Practice on the Do-It-Yourself Angle Trainer was done in two series of timed-exercises. In the first series, penrose drain to be sutured was anchored in oblique 135-degrees position relative to telescope axis (simulating laparoscopic suturing in pyeloplasty, partial nephrectomy and ureteral surgery). In the second series, penrose drain to be sutured was anchored in perpendicular 90-degrees position relative to telescope axis (simulating laparoscopic suturing in prostatectomy, cystorrhapy and pelvic surgery). At 45-degrees angle between straight needle-driver and grasper, the time in seconds making the first suture with three knots was recorded followed by recording the time in seconds making the second to the fifth sutures. Similar timed-exercises were done at 25-degrees angle and 15-degrees angle respectively between straight needle-driver and grasper.
Conclusions: Presented is a Do-It-Yourself Angle Trainer using straight needle-driver and grasper for laparoscopic suturing and knot-tying practice exercises. Because of difficulties in laparoscopic suturing and knot-tying, it is highly recommended to practice these timed-exercises before performing Laparoendoscopic Single Site Surgeries.

MP-04.03
Comparison of Laparoscopic Suturing and Knot-tying Time of Different Acute Angles between Straight Instruments Used during Laparoendoscopic Single Site Surgeries
Arada E, Florencio L, Macalalag M, Mendiola F, Dy J, Ballesteros C, Tuason M
Quirino Memorial Medical Center, Quezon City, Philippines

Introduction and Objective: Laparoscopic suturing and knot-tying with needle drivers and graspers is difficult even in multi-port laparoscopy with optimum angles between straight instruments. This is more challenging in Laparoendoscopic Single Site surgeries due to more acute angles, especially between straight non-articulating instruments. Our objective is to compare duration of laparoscopic suturing and knot-tying when performed at angles of 15-degrees, 25-degrees and 45-degrees between straight non-articulating instruments.
Materials and Methods: Six urologists preformed timed-exercises consisting of making five sutures and tying three knots using 3-O Polyglycolic acid with HR-26 needle in 2 cm incision model inside a Do-It-Yourself Angle Trainer. Straight non-articulating laparoscopic needle drivers and graspers were placed alternately at instrument angles between them of 15-degrees, 25-degrees and 45-degrees. A 0-degree laparoscopic telescope was placed between the instruments and respectively at 135-degrees and 90-degrees suture position relative to telescope axis.
Results: At 45-degrees instrument angle and 135-degrees sutured-object position, suturing and knot-tying time was 744 seconds (range: 480-1128). At 25-degrees instrument angle and 135-degrees sutured-object position, suturing and knot-tying time was 785 seconds (range: 487-1313). At 15-degrees instrument-angle and 135-degrees sutured-object position, suturing and knot-tying time was 1046 seconds (range: 698-1454). At 45-degrees instrument angle and 90-degrees sutured-object position, suturing and knot-tying time was 695 seconds (range: 408-1157). At 25-degrees instrument angle and 90-degrees sutured-object position, suturing and knot-tying time was 736 seconds (range: 345-1325). At 15-degrees instrument angle and 90-degrees

sutured-object position, suturing and knot-tying time was 929 seconds (range: 360-1576). Using Wilcoxon Signed Rank Test, suturing and knot-tying times were significantly longer (p=0.0061) at 15-degrees instrument angle compared with 45-degrees instrument angle. It was also significantly longer (p=0.0061) at 15-degrees instrument angle compared with 25-degrees instrument angle. These were observed in both 135-degrees and 90-degrees sutured-object positions relative to telescope axis. No significant difference (p=0.1167) in suturing and knot-tying time was noted at 45-degrees instrument angle compared with 25-degrees instrument angle.
Conclusions: Compared to 45-degrees angle between instruments and 25-degrees angle between instruments, laparoscopic suturing and knot-tying time is significantly longer in the more acute 15-degrees angle between straight non-articulating instruments used during Laparoendoscopic Single Site surgeries.

MP-04.04
Laparoscopic Surgery for Umbilical Single Port: Initial Experience
Bollini S, **Figueiredo A**, Nunes P, Moreira P, Eufrásio P, Parada B, Rolo F, Mota A
Dept. of Urology and Renal Transplantation, University Hospital of Coimbra, Coimbra, Portugal

Introduction and Objective: Since the first laparoscopic nephrectomy by Clayman in 1991, minimally invasive urologic surgery has gained significant momentum. Although laparoscopy is less traumatic than open surgery, it still requires multiple incisions. Currently they are developing
multiple alternatives to traditional laparoscopy, with an umbilical single port the most exploited to date, since it allows you to perform surgery with minimal incisions, technically demanding and no visible scars. We present our initial experience in laparoscopic surgery service for single umbilical port.
Materials and Methods: We reviewed the medical records and imaging of 16 patients undergoing laparoscopic surgery with Triport™ between May 2009 and March 2011. We assessed the key figures for the patient, injury and surgery. Of the 16 patients, 9 (56.3%) were men and 7 (43.8%) were women. The mean age was 47,81 years (20-79 years). Mean follow up was 10,9 months (1-22 months).
Results: Were performed: 7 adrenalectomy, 4 total nephrectomy, 3 partial nephrectomy, 1 dismembered *ureteropieloplasty* and 1 excision of a pelvic tumor. The average time of surgery was 119,3 min (30-255 min), with an average of 102,8 min (30-255 min) in the adrenalectomy, from 151,0 min (95-204 min) and total nephrectomy in of 126,6min. There were 120-140 min used in the partial nephrectomy. The average bleeding was 187,5 ml(0-600 ml), with an average of 85,71 ml (0-500 ml) in the adrenalectomy, of 262,5ml (0-500ml), total nephrectomy
in 400,0 ml and (300-600 ml) during partial nephrectomy. It was necessary to introduce two 5mm
ports, one in the finalization of the anastomosis to ureteropieloplasty and other for aspiration in partial nephrectomy. Partial nephrectomy was performed in the vascular clamp, with direct puncture with an average time of 25,6 min of clamp (21-28 min). One patient underwent transfusion of blood. The
average length of stay was 1,69 days (1-4 days).
Conclusions: Laparoscopic surgery for umbilical single port, has some advantages over traditional laparoscopy, being applicable in almost all types of renal and adrenal surgery. It presents the most technically demanding, with increased difficulties in the conflict area between the instruments and the lack of triangulation, difficulties that may in part be mitigated by the use of angled instruments. The big advantage is the absence of scarring and shorter hospital stay.

MP-04.05
Application of Computer Optimization Method of Minimally Invasive Surgical Access Based on Pre-Surgical Tomography Data
Dubrovin V, Bashirov V, Tabakov A, Egoshin A
Republic Clinical Hospital, Yoshkar-Ola, Russia

Introduction and Objective: During minimally invasive surgeries correctness of choice of access points with minimal distance to the "object" is of a particular importance. This allows using the length of the instruments efficiently. Nowadays the surgeon himself decides upon the method and surgical access points basing on standard methods and personal experience even though he has got the patient's results of computer tomography. The aim of this work is to develop a helping system for optimization of surgical access based on the analysis of tomography research data for the surgeon.
Materials and Methods: Source data for solution of surgical access optimization problem are the results of tomographic examination of the patient, taken on CT-scanner. All found acceptable ways are reflected on tomogram, the shortest way is sorted out amongst them. 3D-digitizer is used for indicating the found point on the body surface. For the connection of digitizer coordinate system with tomogram coordinate system several control points (at least 4) are indicated both on the body surface and on the tomogram image and after that transition matrix from one coordinate system to another is worked out. The method was originally performed for the 10 patients with renal cysts, their average age was 51,5 (in the range from 30 to 69) years, men – 4(40 %), women - 6 (60%).
Results: Average time of an operation performed with the use of the computerized choice of the surgical approach was 29,5 (25-35) minutes. In all cases the shortest way to reach the affected kidney area was chosen and that helped to create good illumination of the operational field, comfortable conditions of work for a surgeon and there was no necessity to extend incisional wound. There were no complications during the operation and in the post-operative period.
Conclusions: Usage of the introduced computer program allows choosing optimal surgical approach during minimally invasive surgical procedures. This method is particularly perspective for teaching beginner surgeons. It can help them acquire skills in minimally invasive surgery.

MP-04.06
Robotic Assisted Partial Nephrectomy in Patients with Baseline Renal Insufficiency: A Multi-Institutional Study
Kaczmarek B[1], Bhayani S[2], Stifelman M[3], Kaouk J[4], Allaf M[5], Tanagho Y[2], Hillyer S[4], Mullins J[5], Rogers C[1]
[1]Vattikuti Urology Institute, Henry Ford Hospital, Detroit, USA; [2]Washington University School of Medicine, St. Loius, USA; [3]New York University, Langone Medical Center, New York, USA; [4]Glickman Urological and Kidney Institute, Cleveland Clinic, Cleveland, USA; [5]Brady Urological Institute, Johns Hopkins Hospital, Baltimore, USA

Introduction and Objective: Robot assisted partial nephrectomy (RPN) in

the setting of renal insufficiency presents additional challenges for preservation of renal function. We evaluate outcomes of RPN in patients with renal insufficiency.
Materials and Methods: A multi-institutional analysis of prospectively-maintained databases was performed. A total of 886 consecutive patients underwent RPN by high-volume surgeons at five academic institutions between 2007 and 2011. A total of 133 patients were identified with an estimated glomerular filtration rate (eGFR) of <=60 (Modification of Diet in Renal Disease Equation). Patient demographics, perioperative outcomes, functional and early oncological outcomes of RPN in patients with renal insufficiency were evaluated.
Results: Mean patient age was 66.7 years (range 35-89), mean BMI was 31.1kg/m2 (range 16-52), mean Charlson Comorbidity Index was 4.7 (SD 2.36), mean ASA was 2.8 (SD 0.56). There were 126 patients with stage III CKD (94%), 6 patients with stage IV CKD (4.5%) and 1 patient with stage 5 CKD (0.75%). Mean tumor size was 3.2 cm (range 1.0-8.0) and mean nephrometry score was 6.8 (4-11). Eleven patients (8.3%) had solitary kidney. RPN was performed without hilar clamping in 13 patients (9.8%). Median warm ischemia time was 19.0 minutes (SD 9.66) and median OR time was 200.0 minutes (SD 55.8). Mean EBL was 212.7ml (range 10ml-1500ml). Mean hospital stay was 3.2 days (SD 2.2). Mean decrease in postoperative eGFR was 1.6% at 1 month and 3.3% at 6 months. At 1 month follow-up, CKD stage decreased in 2 patients, with one additional stage IV and one additional stage V CKD patient. There were 3 positive margins (2.25%). There were 30 postoperative complications (22.5%), with 8 patients (6%) with Clavien =>3 complications: renal insufficiency requiring dialysis (2 patients), urine leak requiring stenting (2 patients), DVT, PE, atrial flutter. Fifteen patients required blood transfusion. There were no recurrences noted at up to 13.95 months follow-up.
Conclusions: RPN is safe and feasible in the setting of renal insufficiency in appropriately selected patients and with surgeon experience. These data may be useful in counseling patients with renal insufficiency. Source of Funding: none

MP-04.07
Robotic Ultrasound Probe in Robotic Partial Nephrectomy
Kaczmarek B, Sukumar S, Trinh Q, Mander N, Chen R, Desa N, Diaz-Insua M, Menon M, Rogers C
Vattikuti Urology Institute, Henry Ford Hospital, Detroit, USA

Introduction and Objective: Precise tumor identification during partial nephrectomy (PN) is important for successful oncologic control. Intraoperative ultrasound can help with tumor identification during partial nephrectomy. Robotic partial nephrectomy (RPN) using a laparoscopic ultrasound probe (LUP) for tumor identification requires the probe to be controlled by the bedside assistant. A robotic ultrasound probe (RUP) allows the surgeon to control intraoperative ultrasound, but the use of the RUP has not yet been evaluated in comparison to LUP. We evaluate robotic partial nephrectomy using a RUP in comparison to a LUP.
Materials and Methods: Data from 75 consecutive RPNs performed with a LUP between January 2009 and November 2010 were retrospectively analyzed against 75 consecutive RPNs performed with a RUP between November 2010 and November 2011.
Results: A total of 72 patients underwent 75 consecutive RPN using the LUP with a mean tumor size followed by 73 patients who underwent 75 consecutive RPNs using the RUP. The patient population data did not differ significantly. The robotic group had a larger tumor endophytic percentage (42.8 vs. 55.3%, p=0.004), but other perioperative factors, such as mean OR time (233 vs. 218mins), mean console time (173 vs. 156mins, p=0.095) and mean blood loss (164ml vs. 171ml, p=0.79) did not achieve statistically significant difference. All patients are free of cancer recurrence after a mean FU of 25.7 months in the LUP group and 10.2 months in the RUP group.
Conclusions: A RUP under surgeon control during RPN offers comparable tumor identification and margin rates as a LUP with advantages of increased surgeon autonomy. Source of funding: none

MP-04.08
Laparoscopic Augmentation Enterocystoplasty for Treatment of Contracted Bladders
Nguyen V
Binh Dan Hospital, Ho Chi Minh, Vietnam

Introduction and Objective: We represent our experiences in Binh Dan hospital (Vietnam) to perform augmentation enterocystoplasty by laparoscopy for treatment of contracted bladders.
Materials and Methods: Patients were diagnosed with contracted bladders caused by detrusor overactivity (neurogenic or idiopathic) and tuberculosis, with complications of severe voiding dysfunction and/or hydronephrosis. Augmentation enterocystoplasty (Goodwin's procedure) via laparoscopy for all the cases; Uretero – neovesical reimplantation for patients with severe hydronephrosis due to VUR or stenosis of UVJ; Urinary continent stoma (Monti's or Mitrofanoff's procedures) for patients who were inconvenient for SCIC via urethra such as tetraplegia or severe urethral stenosis.
Results: From July 2008 to December 2011, 48 cases of augmentation enterocystoplasty by laparoscopy were performed at Binh Dan hospital, composed of 29 men and 19 women. Among them, 27 were combined with reimplanting ureters to augmented bladders, and 6 were associated with performing continent stomas. Mean age ~ 24.8 (min = 8, max = 76). Mean operation time was ~ 282 minutes (min = 230, max = 450). No peri-operative complication was recorded. Mean hospital stay was ~ 8.4 days (min = 5, max = 14). Follow-up was from 3 – 36 months. Three cases suffered from intestinal obstruction from 1 week to 1 month post-op: two of them were resolved by themselves, the last one had to reoperate. One case suffered from augmented bladder perforation caused by self catheterization 10 months after operation and had to reoperate.
Conclusions: Laparoscopic augmentation enterocystoplasty can be done safely and feasibly. In some cases, we performed augmentation cystoplasty combined with ureteral reimplantation and continent stoma in one operation via laparoscopic surgery. In our hospital, laparoscopic augmentation cystoplasty has been done routinely instead of conventional open surgery since 2008.

MP-04.09
Tackling the Left Renal Vein Thrombus During Laparoscopic Radical Nephrectomy: A Novel Approach
Rao P[1], Rao P[1], Rao P[1], Desai M[2]
[1]*Mamata Hospital, Dombivli, India;*
[2]*University of Southern California, Los Angeles, USA*

Introduction and Objective: A renal vein thrombus associated with a renal tumor is always a challenge to tackle by a minimally invasive approach. Most papers detailing this problem have shown methods of tackling Right renal vein thrombi. We present our approach to thrombi in the Left renal vein with left sided renal tumors treated with laparoscopic surgery.
Materials and Methods: We present 4

cases operated at 2 different centers by this novel approach. All 4 cases had Left renal tumors with thrombus in the left renal vein but not entering the IVC. Angioembolization was done immediately prior to the surgery. This enabled primary control of the renal vein at IVC level. Approach to the renal vein was done with a right side up position. The left renal vein was clipped / stapled and cut at the IVC after which the patient's position was changed to left side up. The laparoscopic nephrectomy was then completed in the routine manner and kidney delivered.
Results: The surgery could be completed successfully in all the patients without any complications. The margins were clear in all the cases.
Conclusions: This approach with a multidisciplinary approach involving the interventional radiologist seems to be a safe, efficacious and oncologically sound technique for tackling left renal vein thrombi in a minimally accessible fashion.

MP-04.10
Laparoendoscopic Single-Site Partial Nephrectomy with Early Unclamped Technique: Evaluation of the Surgical Outcomes and of the Effects on Renal Function
Springer C, Hoda R, Kawan F, Fornara P, Greco F
Dept. of Urology, Martin-Luther-University, Halle/Saale, Germany
Laparoendoscopic Single-Site Partial Nephrectomy with Early Unclamped Technique: Evaluation of the Surgical Outcomes and of the Effects on Renal Function

Introduction and Objective: Since its initial clinical use in urology, there has been an increasing enthusiasm and a growing interest for the laparoendoscopic single site surgery (LESS). All extirpative and reconstructive urological procedures have been described. However, LESS-partial nephrectomy (PN) represents one of the most complex procedures.
Material and Methods: As of February 2011, a prospective analysis of the patients who underwent LESS-PN was done. Patients were strictly selected on the basis of a single, exophytic, cortical, small renal mass (≤4.0 cm). Demographic data, perioperative and postoperative variables, including operative time, estimated blood loss (EBL), warm ischemia time (WIT), length of stay (LOS), haemoglobin decrease, postoperative pain evaluated based on a visual analogue scale score (VAS) at the discharge, incision length, renal function, pathologic results and tumor size were recorded and analyzed. All tumors were classified according to the 'preoperative aspects and dimensions used for an anatomical' (PADUA) classification. The function of the kidney was evaluated by measuring serum creatinine and serum cystatin C levels (biochemical markers of glomerular filtration). Moreover, to improve the quality and validity of the study, we also evaluated, GFR preoperatively, at 24 h after surgery and at 1-month follow-up. GFR was calculated using the CKD-EPI (Chronic Kidney Disease Epidemiology Collaboration) formula.
Results: The median operative time was 137.4±16.4 min with a median estimated EBL of 113±32 ml and the median WIT resulted in 11.1±2.4 min using an early unclamped technique. In all cases no intraoperative and postoperative complication occurred. Postoperatively, the operated kidney did not experience any alterations in perfusion by dopplersonography without increases in biochemical markers of glomerular filtration. Moreover, the pre-and postoperative (1-month follow-up) glomerular filtration rate (GFR) did not differ significantly from each other. The median PADUA-score: 7.1±0.3and pathology revealed 4 T1a clear cell, 1 oncocytoma and 1 chromophobe renal cell cancers and negative surgical margins were reported in all patients. Median LOS was 4.7±1.1 days.
Conclusions: LESS-PN with early unclamped technique in well-selected patients affected by renal cancer can be performed without increased risks for the patients and for the renal function.

MP-04.11
Laparo-Endoscopic Single-Site (LESS) Donor Nephrectomy Using GelPOINT®: An Initial Clinical Experience
Inoue T[1], Narita S[1], Numakura K[1], Tsuchiya N[1], Satoh S[2], Habuchi T[1]
[1]Dept. of Urology, Akita University Graduate School of Medicine, Akita, Japan; [2]Div. of Renal Replacement Therapeutic Science, Akita University Graduate School of Medicine, Akita, Japan

Introduction and Objective: Recent reports have suggested that Laparo-Endoscopic Single-Site (LESS) surgeries is feasible and improves the cosmesis of renal transplantation donors; however, this procedure requires utilization of specialized instruments. We present our experience with LESS donor nephrectomy performed at Akita University.
Materials and Methods: From December 2011 to March 2012, a total of 5 living renal transplant donors underwent LESS nephrectomy. The median age, height, weight, and preoperative creatinine clearance of donors were 57 (43–74) years, 156.6 (155.3–158.5) cm, 57.5 (46.6–64.2) kg, and 109.9 (75.4–122.1) mg/min, respectively. A GelPOINT® Advanced Access Platform was applied at a 5–5.5-cm pararectal incision at the level of the umbilicus, and the graft kidney was extracted using an Endo Catch II™ bag.
Results: The procedure was technically successful in all 5 patients. Median operative time, blood loss, and warm ischemic time were 198 (183–258) min, 34 (0–140) mL, and 223 (199–436) sec, respectively. Median 7-day and 1-month postoperative serum creatinine concentrations were 1.00 (0.79–1.55) mg/dL and 0.90 (0.73–0.99) mg/dL, respectively. There were no complications or delayed graft function in this series. Most procedures were able to be performed with conventional laparoscopic techniques and instruments. No significant difference was observed between the operative data of LESS donor nephrectomy and conventional laparoscopic donor nephrectomy (n = 111) performed at our institute reviewed as historical controls.
Conclusions: Although the number of cases is small, LESS donor nephrectomy using a GelPOINT® was safely and efficiently performed by experienced laparoscopic surgeons at our institute.

MP-04.12
Laparoscopic Radical Nephrectomy Under Near Real-Time Three-Dimensional Surgical Navigation with C-Arm Cone Beam Computed Tomography
Tetsuo N, Hiroaki I, Akihiro M, Akihiko W, Yasuyoshi F, Akira K, Hideki F
Dept. of Urology, University of Toyama, Toyama, Japan

Introduction and Objective: The imaging information provided by C-arm cone beam computed tomography (CBCT) is obtained using a C-arm system that rotates around the patient, and provides an image quality similar to that of CT images. The aim of this study was to demonstrate the advantages of C-arm CBCT for imaging guidance during laparoscopic radical nephrectomy (LRN).
Materials and Methods: Four patients referred to our institution for LRN were included in this study. After the exposure of the anterior Gerota's fascia, the responsible radiologist set up the C-arm

CBCT system. To visualize the renal vascular anatomy, the Iopamiron 300 contrast agent was injected intravenously. After confirming the visualization of the renal arterial phase on the real- time fluoroscopic image, three- dimensional (3D) images were acquired in a 200° rotation of the C-arm equipped with a flat-panel detector. The scan time was approximately 8 seconds. Image reconstruction was performed on a workstation to define certain anatomical structures. After restarting the laparoscopic procedure, the obtained 3D reconstructed CT images were displayed on a submonitor and compared with the laparoscopic image of the surgical field, providing a virtual map for the surgeon. The surgeon could adjust the viewing angle and rotate the reconstructed 3D image manually by using a mouse-like controller.
Results: It was easy to create 3D CT images during the operation. Using the near real-time 3D navigation images, the surgeon was able to recognize the renal vascular anatomy. All procedures were successfully performed with a satisfactory diagnostic yield or therapeutic effect without procedure-related complications.
Conclusions: This novel technology has great potential for application in LRN because it enables accurate depiction of the renal vessels and increases surgeon confidence. Further studies are necessary to investigate the actual benefits of this system for use in performing LRN.

MP-04.13
Trend of Nephrectomy for Renal Malignancy 2007-2010 in Japan and Factors Affecting Minimally Invasive Surgery from a Nationwide Database
Toru S[1], Yasunaga H[3], Horiguchi H[3], Nishimatsu H[2], Kume H[2], Suzuki K[1], Matsuda S[5], Fushimi K[4], Homma Y[2]
[1]Dept. of Urology, Shintoshi Hospital, Iwata, Japan; [2]Dept. of Urology, The University of Tokyo, Tokyo, Japan; [3]Dept. of Health Management and Policy, The University of Tokyo, Tokyo, Japan; [4]Dept. of Health Care Informatics, Tokyo Medical Dental University, Tokyo, Japan; [5]Dept. Public Health, University of Occupational and Environmental Health, Kitakyushu, Japan

Introduction and Objective: To reveal the trend of nephrectomy and to analyze factors affecting choices of minimally invasive surgery for renal malignancy in Japan.
Materials and Methods: We identified patients undergoing open, laparoscopic or minimum incision endoscopic surgery (MIES) nephrectomy for renal malignancy from the Diagnosis Procedure Combination database between July and December, 2007–2010. Data included demographics, comorbidities, performance status, TNM classification, type of hospital, hospital volume and located region. Multivariate logistic regression analysis was performed to reveal the factors affecting choices of minimally invasive surgery (laparoscopy or MIES). A nomogram based on the result was built with an internal validation by bootstrapping with 1000 resamples.
Results: There were 14 950 patients (8646 open (57.8%), 5 923 laparoscopic (39.6%) and 381 MIES (2.5%) nephrectomy) from 785 hospitals included. Proportion of open nephrectomy decreased from 65.3% in 2007 to 51.6% in 2010. Laparoscopic nephrectomy accounted for 51.0% of T1 tumors. Multivariate analysis showed minimally invasive nephrectomy was significantly likely performed for patients in their 30-50s (OR of 60s, 70s and ≥80; 0.90, 0.88 and 0.86 reference to 30-50s, respectively) with low Charlson comorbidity index (OR of 1-2 and ≥3; 0.84 and 0.68 reference to 0, respectively), good performance status (OR of performance status ≥1, 0.72 reference to 0) and low TNM stage (OR of T2, ≥N1, M1; 0.27, 0.37 and 0.74 reference to T1, N0 and M0, respectively) who were hospitalized at high-volume (OR, 3.21 reference to low-volume) and/or academic hospitals (OR, 1.31 reference to non-academic) located in western Japan. Hemodialysis use was also a favorable factor (OR, 1.65 reference to non-user). Nomogram was built and the concordance index of the nomogram was 0.722.
Conclusions: Gradually laparoscopic and MIES nephrectomy took the place of open nephrectomy especially in T1 tumors and was more likely selected for patients with early tumor stage and low risk.

MP-04.14
Contrast-Enhanced Ultrasound (CEUS) in Imaging of Renal Space Occupying Lesion: What Is Its Role?
Vyas J, Agrawal V, Ganpule A, Mishra S, Raghuram, Sabnis R, Desai M
Muljibhai Patel Urological Hospital, Nadiad, India

Introduction and Objective: Contrast agents for ultrasonography comprises of microscopic bubbles of gas in an encapsulating shell. They are unique in that they interact with the imaging process, oscillating in response to a low-intensity ultrasound field and disrupting in response to a high-intensity field. CEUS has a high impact for the characterization of hepatic lesions. Its use in renal masses has been less comprehensively studied. These agents are safe, not nephrotoxic and require no radiation exposure. We present the results of our initial 22 cases. Aim: evaluate the role of CEUS in characterizing renal space occupying lesion (SOL).
Materials and Methods: With consent, we performed CEUS in patients with renal SOL (single, less than 5cm and with good acoustic window on conventional USG) before surgery using the microbubble contrast agent SonoVue (Bracco, Italy). The examination was performed with an ultrasound machine with a low mechanical index (low MI) using the contrast agent imaging method "contrast pulsed sequencing" (CPS). We recorded the vascularization in the early phase (< 30 s) and the late phase (60 - 120 s). These findings were compared to contrast CT and final histopathological report.
Results: A total of 22 cases were studied until March 2012. Mean size of SOL was 4.2 cm. Out of 22, 11 renal SOL was solid, 7 cystic and 4 with mixed echogenicity. In solid SOL, mean early enhancement was 9 Sec and with early wash out of 65 sec. Out of 11, 9 patients were operated and diagnosed as different variant of renal cell carcinoma. Out of 7 cystic SOL, 4 were homogenously enhanced and finally reported as RCC while in three cases only wall was enhanced, reported as cyst. Four cases with mixed echogenicity were inhomogeneously enhanced with thick wall and delayed wash out, finally reported as abscess. All patients tolerated the procedure well and had no nephrotoxicity.
Conclusions: CE US plays a vital role in imaging renal SOL over conventional ultrasound and has expanding role in management and patient care. It can be safely used in patients with deranged renal function and patients allergic to ionic contrast.

MP-04.15
Pure Laparoendoscopic Single Site Extraperitoneal Radical Prostatectomy with Mean 16 Months' Follow-Up: A Chinese Institution Experience
Xu A, Li H, Zheng S, **Liu C**
Dept. of Urology, Zhujiang Hospital, Southern Medical University, Guangzhou, China

Introduction and Objective: To report our experience with pure laparoendoscopic single site extraperitoneal radical prostatectomy using homemade multichannel single port with 16 months follow-up.

Materials and Methods: Between February and October 2010, we operated on 5 patients with localized prostate cancer (T_1C, mean PSA level 4.7). Two patients underwent appendectomy many years ago. The single multichannel port was made from outer ring, inner elastic rings and a sterile surgical glove as well. After a 2.5 cm curved periumbilical incision was made, the preperitoneal space was entered. Then, the homemade multichannel port was inserted. The preperitoneal space was developed. Pelvic lymph nodes dissection and radical prostatectomy were performed in accordance with the technique of laparoscopic extraperitoneal radical prostatectomy. The vesicourethral anastomoses were made using continuous suture with 3-0 monocryl thread. Pelvic drainage was inserted through center of belly button and periumbilical incision was closed with subcuticular suture.
Results: All cases were completed successfully in a mean operative time of 245 min (range 225-310), mean estimated blood loss 170 ml (range 50-500). Blood transfusion was required in one case. No extra port was needed. There were no intraoperative complications. The catheter was removed after cystogram revealing no leakage 18 days postoperatively. The pathological investigation revealed pT2a or pT2b prostate cancer in all five cases without positive surgical margins or pelvic lymph node metastasis. The mean Gleason score is 5.2 (range 4-7). PSA decreased to baseline level in all patients one month after operation. After a mean follow-up of 16 months (range 12-19), no relapse was observed in all cases. Continence was gained 3 to 5 weeks postoperatively in all patients. No safety pad was required during nighttime. Dysuria happened to the first patient 2 months postoperatively and urethral erosion by a Hem-o-lok clip was found with cystoscopy After the clip was removed with transurethral intervention, the patient urinated normally.
Conclusions: According to our experience, laparoendoscopic single site extraperitoneal radical prostatectomy is feasible safe with good cosmetic results, but it is technically challenging and time-consuming especially for vesicourethral anastomoses. Medium-term follow-up results from our study showed LESS radical prostatectomy can offer good oncological and functional outcomes.

MP-04.16
Transrectal Hybrid Natural Orifice Transluminal Endoscopic Surgery Nephrectomy in a Porcine Model
Zou X[1], Zhang G[1], Zhang X[2], Ma X[2], Xu H[1], Yuan Y[1], Xiao R[1], Wu G[1], Wang X[1], Long D[1], Wu Y[1], Xue Y[1]
[1]Dept. of Urology, First Affiliated Hospital of Gannan Medical University, Ganzhou, China; [2]Dept. of Urology, Clinical Division of Surgery, Chinese PLA General Hospital, Beijing, China

Introduction and Objective: To evaluate feasibility of transrectal hybrid natural orifice translumenal endoscopic surgery (NOTES) nephrectomy in the porcine model.
Materials and Methods: After obtaining the approval of Committee of Ethics of Gannan Medical University, 6 female pigs (35 kg) underwent transrectal hybrid NOTES nephrectomy (3 right, 3 left). A 5- and 10-mm trocar were placed at the right and left margin of umbilicus. Pneumoperitoneum was achieved by either of the trocar. A 5-mm trocar was placed through the rectum into the abdominal cavity under the direct vision from a 5-mm flexible-tip 0° laparoscope inserted through the 5-mm trocar at the margin of umbilicus. Dissection was performed according to the method of a standard laparoscopic nephrectomy using conventional operating apparatus placed in the abdominal trocars, under direct vision achieved by the 5-mm flexible-tip 0° laparoscope placed through the rectal trocar. The renal artery, vein, and ureter were clipped with Hem-o-lock and Titanium clips in turn. The specimen was placed inside a homemade bag and removed transrectally, followed by transrectal incision closure.
Results: Transrectal hybrid NOTES nephrectomy was successfully performed in all cases. The median operative time was 120 (range 90 to 170) min. The median estimated blood loss was 40 (range 20 to 100) mL. On necropsy, no intraabdominal injuries were noted.
Conclusions: Transrectal hybrid NOTES nephrectomy appears to be a feasible and effective surgical technique, which results in excellent cosmesis. Survival studies are necessary to evaluate its short- and long-term complications. This approach may be useful as an alternative to transvaginal access.

Moderated Poster Session 5
Bladder Cancer: Various Topics
Monday, October 1
15:15-16:45

MP-05.01

Therapeutic Effects of RGD-Fiber Modified E1A, E1B Double-Restricted Oncolytic Adenovirus for CAR-Deficient Bladder Cancer

Wang H[1], Li D[1], Chen G[1], Zhao Y[1], Li F[1], Wang Z[1], Liu Z[1], Satoh M[2], Hamada H[3], Arai Y[4]

[1]Dept. of Urology, Zhejiang Cancer Hospital, Hangzhou, China; [2]Dept. of Urology, Sen-En General Hospital, Tagajo, Miyagi, Japan; [3]Dept. of Molecular Medicine, Sapporo Medical University, Sapporo, Japan; [4]Dept. of Urology, Tohoku University Graduate School of Medicine, Sendai, Japan

Introduction and Objective: We have previously demonstrated that an E1A, E1B double-restricted oncolytic adenovirus AxdAdB-3 has a potential antitumor effect on an orthotopic bladder cancer model in severe combined immunodeficiency (SCID) mice. In the present study, we evaluate the therapeutic efficacy of AxdAdB-3 with RGD-fiber modification (AxdAdB3-F/RGD), which enables integrin-dependent infection, for bladder cancer.

Materials and Methods: Expressions of adenoviral receptors, coxsackievirus adenovirus receptor (CAR) and integrins ($_v\beta_3$ and $_v\beta_5$) were detected in human bladder cancer cell lines YTS-1, T24, 5637 and KK47. Adenovirus-mediated gene transduction into various cell lines was evaluated by AxCAlacZ (LacZ-expression replication-defective adenovirus) or AxCAZ3-F/RGD (LacZ-expression replication-defective adenovirus with RGD-modified fiber) infection followed by 5-bromo-4-chloro-3-indolyl-beta-galactoside (X-Gal) staining. The cytopathic effects of AxdAdB3-F/RGD were evaluated in several bladder cancer cell lines and in a normal bladder mucosa-derived cell line (HCV29) with AxCAZ3-F/RGD (control) or AxdAdB-3. The efficacy of bladder instillation therapy with AxdAdB3-F/RGD for orthotopic bladder cancer of nude mice was investigated.

Results: The susceptibility of various cell lines to adenovirus was associated with the expression of CAR, whereas all the bladder cancer cell lines tested expressed integrins ($_v\beta_3$ or $_v\beta_5$). AxdAdB-3 was more cytopathic in CAR-positive bladder cancer cells than in CAR-negative cells, whereas AxdAdB3-F/RGD caused the potent oncolysis in both CAR-positive and CAR-negative bladder cancer cells. AxdAdB3-F/RGD was not cytotoxic against HCV29. Direct instillation of AxdAdB3-F/RGD into the bladder of the orthotopic model established by CAR-deficient human bladder cancer cells inhibited tumor growth, leading to significantly prolonged survival.

Conclusions: E1A, E1B double-restricted oncolytic adenovirus with RGD-fiber modification enhanced the infectivity and oncolytic effects to CAR-deficient bladder cancer while sparing normal cells, our results demonstrate the therapeutic potential of AxdAdB3-F/RGD for bladder cancer.

MP-05.02

Pathological Significance of HuR Expression in Bladder Cancer: Correlation with Cell Proliferation and Angiogenesis

Miyata Y, Ohba K, Matsuo T, Sagara Y, Watanabe S, Sakai H

Dept. of Nephro-Urology, Nagasaki University Graduate School of Biomedical Sciences, Nagasaki, Japan

Introduction and Objective: The control of mRNA stability is an important mechanism controlling gene expression. HuR is well-known to regulate stability of m-RNA and it is reported to regulate cell proliferation and angiogenesis in various pathological. Actually, there were several reports that HuR expression positively associated with malignant aggressiveness and served as a prognostic factor of poor clinical outcome. However, clinical and pathological significance of HuR in patients with bladder cancer is still unclear. The main objective is to clear its clinical significance, and prognostic roles, and predictive value for survival in patients with bladder cancer. In addition, we also investigated relationships between its expression and cancer cell proliferation and angiogenesis.

Materials and Methods: All expressions were examined by immunohistochemical technique in 122 formalin-fixed specimens. HuR expression was evaluated in cytoplasmic and nuclear staining separately. Cell proliferation, angiogenesis and lymphangiogenesis were measured by percent of Ki-67-positive cell (proliferation index, PI) and CD34-stained vessels (Microvessel density, MVD).

Results: In normal urothelial cells, 90% (18/20) were judged as high nuclear expression, in contrast, only 5% was judged as high cytoplasmic expression. On the other hand, in bladder cancer cells, 88 (72.1%) and 31 specimens (25.4%) showed high expression of nucleus and cytoplasm, respectively. Nuclear HuR expression bears no significant relation to pathological features; however, cytoplasmic HuR expression was positively associated with pT stage and grade ($p<0.001$). Cytoplasmic HuR expression also correlated to PI and MVD. High expression of HuR in cytoplasm is significant predictor for metastasis and cause-specific survival, and it was identified as a prognostic correlative factor for metastasis (hazard ratio = 4.75, 95% CI = 1.78 – 12.75, $P = 0.028$) in multivariate analysis model including pathological features.

Conclusions: Our results demonstrated that cytoplasmic HuR was speculated to play important roles of cell proliferation, progression, and survival of bladder cancer patients. In addition, these pathological roles are regulated by angiogenesis.

MP-05.03

Copy Number Aberrations Predict Patient Prognosis in Non-Muscle Invasive Bladder Cancer

Matsuyama H[1], Eguchi S[1], Sasaki K[2]

[1]Dept. of Urology, Graduate School of Medicine, Yamaguchi University, Ube, Yamaguchi, Japan; [2]Dept. of Pathology, Graduate School of Medicine, Yamaguchi University, Ube, Yamaguchi, Japan

Introduction and Objective: Prognosis of patients with non-muscle invasive bladder cancer (NMIBC) is variable. Recent studies have demonstrated strong association of somatic copy number aberrations of chromosomes with patient prognosis. Although UroVysion (Abbot), a multicolor fluorescence *in situ* hybridization (FISH) detecting copy number of chromosomes 3, 7, 9p21, and 17, is commercially available kit for the diagnosis of NMIBC, significance of patient outcome prediction is not yet confirmed. The aim of this study is to study if UroVysion kit may predict patient outcome in NMIBC.

Materials and Methods: A Total of 102 bladder washing solutions were collected from patients who underwent TURBT, and were pathologically confirmed NMIBC from 2007 to 2010 in our institute. Parallel cytological specimens of conventional cytology and FISH were processed by centrifugation. FISH specimens were studied by UroVysion. The mean age was 70.8 years. Gender was male/female in 79, and 23 cases, respectively. Concurrent upper urinary tract urothelial cancer (UUTUC) was found in 15 cases. Aberrant fraction, sum of non-modal copy number fraction of each

chromosome, and % deletion of 9p21, fraction of lesser copy number of 9p21 locus than chromosome 9 was defined abnormal when percentage of each fraction was 25% or more, and less than 15%, respectively.
Results: Recurrence and disease progression were found in 42, and 5 cases, respectively with a mean follow-up of 33.6 months. Multivariate analysis demonstrated that pathological stage and % deletion of 9p21 were independent prognostic factors for recurrence, and concurrent UUTUC, mean variant fraction to be prognostic factors for disease progression.
Conclusions: A multicolor FISH analysis using commercially available kit could be a powerful molecular marker not only for diagnosis, but also for predicting patient prognosis.

MP-05.04
A Key Role for ARF in Drug Resistance in Invasive Bladder Cancer
Kobayashi T[1,2], Ogawa O[2], Abate-Shen C[1]
[1]Dept. of Urology, Columbia University Herbert Irving Comprehensive Cancer Center, New York, USA; [2]Dept. of Urology, Kyoto University Graduate School of Medicine, Kyoto, Japan

Introduction and Objective: Although most superficial bladder cancers can be removed transurethrally with good prognosis, clinical outcome is more problematic for patients with muscle-invasive disease. Indeed, invasive bladder cancer is a major clinical challenge since it is frequently associated with postoperative recurrence and metastasis. Current treatments for lethal bladder cancer include systemic chemotherapy and molecular targeted therapy; however, survival is poor since most patients eventually develop resistance to the drugs within a short timeframe. Clearly, there is a need to identify novel therapeutic options for invasive bladder cancer as well as a greater understanding of the molecular mechanisms of drug resistance.
Materials and Methods: We investigated mechanisms of drug resistance using genetically-engineered mouse models of invasive bladder cancer based on the combinatorial deletion of *p53* and *Pten* in bladder epithelium. *p53* and *PTEN* are frequently inactivated in human bladder cancers, particularly those with poor prognosis. We treated mouse primary bladder cancers, allograft tumors established from these mice, and bladder cancer cell lines with cisplatin, docetaxel, or rapamycin.
Results: We have observed that these *p53*; *PTEN* deficient tumors express robust levels of $p19^{ARF}$, while targeted deletion of *Arf* retards the acquisition of resistance following drug treatment. The significance of ARF expression was further suggested by analysis of 3 independent cohorts of gene expression profiling and immunostaining of human bladder cancer which revealed that high ARF expression is an independent predictor of poor survival of bladder cancer patients. Furthermore, following drug treatment in the mouse model, the *Arf*-positive, compared to the *Arf*-null, tumors showed significantly higher activation of PI3K-mTOR pathway consistent with significant enrichment in molecular pathways related to the PI3K/AKT pathway and drug resistance, suggesting that a model for drug resistance is via PI3K pathway activation. We have observed similar results in human bladder cancer cell lines either following knock-down of $p14^{ARF}$ in J82 cells that express endogenous $p14^{ARF}$ or following forced expression of $p14^{ARF}$ in ARF-negative UMUC3 human bladder cancer cells, and in both cases it was coincident with deregulated activation of PI3K-mTOR pathway.
Conclusions: ARF contributes to bladder cancer drug resistance by activating PI3K-mTOR pathway, highlighting a potential therapeutic target for advanced invasive bladder cancer patients.

MP-05.05
S100A9 and EGFR Gene Signatures Predict Disease Progression in Bladder Cancer Patients after Chemotherapy
Kim W, Kim W, Yan C, Kim Y, Yun S, Lee S
Dept. of Urology, Chungbuk National University, Cheongju, South Korea

Introduction and Objective: In a gene expression profile analysis carried out in an earlier study by our group, IL1B, S100A8, S100A9, and EGFR were shown to be important mediators of MIBC progression. The aim of the present study was to investigate the ability of these gene signatures to predict disease progression after chemotherapy in patients with locally recurrent or metastatic MIBC.
Materials and Methods: Patients with locally recurrent or metastatic MIBC who received chemotherapy were enrolled in the study. In addition, 69 primary MIBC samples were analyzed. The expression signatures of four genes were measured by real-time PCR. The prognostic effect of these genes was evaluated by Kaplan-Meier analysis and Cox regression.
Results: Two of the four genes, S100A9 and EGFR, were determined to significantly influence disease progression ($p=0.023$, $p=0.045$, respectively). Based on a ROC curve, a cutoff value (36.1683) for disease progression was determined. The time to progression was significantly different between the good- and poor-prognostic signature groups, both in all patients and in the subgroup of those who had previously undergone cystectomy ($p<0.001$, respectively). In multivariate Cox regression analysis, gene signature was the only factor that significantly influenced disease progression in these patients (HR: 5.380, CI: 1.570–18.436, $p=0.007$). Patients in the good-prognostic signature group had a significantly longer cancer-specific survival time than those in the poor-prognostic signature group ($p=0.010$).
Conclusions: The gene signatures S100A9 and EGFR may be useful markers for predicting chemoresponse in patients with locally recurrent or metastatic MIBC.

MP-05.06
Advantages of a New Diagnostic and Treatment Approach in Cases of Large Non-Muscle Invasive Bladder Tumors: NBI Cystoscopy and Bipolar Plasma Vaporization
Geavlete B, Stanescu F, Geavlete P
Saint John Emergency Clinical Hospital, Bucharest, Romania

Introduction and Objective: The trial evaluated the diagnostic accuracy, perioperative and follow-up results of narrow band imaging (NBI) cystoscopy associated with bipolar plasma vaporization (BPV) in cases of large non-muscle invasive bladder tumors (NMIBT).
Materials and Methods: A total of 110 patients with bladder tumors over 3 cm were included in the trial. WLC and NBI cystoscopy followed by BPV were performed in every case under spinal anesthesia. NMIBT patients underwent standard Re-TUR 4 weeks after the initial procedure, one year BCG intravesical therapy and follow-up standard cystoscopy at 3, 6, 9 and 12 months.
Results: The CIS (94.6% versus 67.6%), pTa (93% versus 82.4%) and overall NMIBT (94.9% versus 84.3%) tumors' detection were significantly improved for NBI cystoscopy by comparison to standard WLC. BPV provided satisfactory obturator nerve stimulation (3.2%) and bladder wall perforation (1.1%) rates, as well as reduced mean hemoglobin drop (0.2 g/dl), catheterization period (47.2 hours) and hospital stay (2.9 days). The overall (6.3%) and primary site (4.2%) residual tumors' rates at Re-TUR were

decreased for the NBI-BPV approach. The overall NMIBT (7.9%) and other site (3.4%) one year' recurrence rates were also reduced in this series of patients.
Conclusions: NBI cystoscopy significantly improved the diagnostic accuracy in cases of large NMIBT, while BPV emphasized superior surgical efficacy and safety. This combined technique provided a low residual tumors' rate at Re-TUR due to fewer primary site recurrences as well as a reduced one year recurrence rate subsequent to fewer other site recurrences.

MP-05.07
The Efficacy of Prulifloxacin for the Management of LUTS in Patients Receiving Intravesical BCG for Non-Muscle Invasive Bladder Tumors
Sountoulides P[1], Theodosiou A[1], Kikidakis D[1], Rountos T[1], Zioga N[1], Filintatzi C[2], Paschalidis K[1]
[1]Dept. of Urology, General Hospital of Veria, Veria, Greece; [2]Pathology Lab, General Hospital of Veria, Veria, Greece

Introduction and Objective: Non-muscle invasive transitional cell carcinoma (TCC) of the bladder (T1 and Cis) is usually treated with transurethral resection of bladder tumors (TURBT) followed by intravesical instillations of chemotherapeutic or immunotherapeutic agents. BCG immunotherapy has been proven effective in reducing recurrences and, to a lesser extent, progression to muscle invasive disease. However, its use has been associated with predominantly irritative lower urinary tract symptoms (LUTS). This study assessed the efficacy of prulifloxacin in ameliorating the degree of irritative bladder symptoms following intravesical BCG in patients with non-muscle invasive TCC of the bladder.
Materials and Methods: We studied 36 men and women (52-78 years of age) with newly diagnosed non-muscle invasive TCC of the bladder following TURBT. Histopathology revealed high grade, non-muscle invasive tumors and/or Carcinoma in Situ (T1G1-3, CIS) in all patients. Patients were received intravesical instillations of BCG for an introductive 6 week course, with repeat 3-week instillation at months 3, 6 and 12. IPSS scores were submitted prior to the start of the BCG induction course and at the end of the 6 week course. Patients were divided: group A (n=18) prophylactically received 600 mg of prulifloxacin for 3 days after each BCG instillation; group B (n=18) received no prophylactic antibiotic treatment. The differences in LUTS (mirrored in the IPSS scores and the rates of febrile urinary tract infections) were recorded in both groups.
Results: Patients in both groups showed a deterioration of LUTS with an increase in IPSS scores from baseline at the end of the 6 week BCG course. However, this increase was smaller in group A (IPSS 11,5-13/ 13% change) than group B (IPSS 12,5-16/ 28% change); $p<0,0001$ in the x2 test). There were no differences between the two groups regarding the rate of episodes of cystitis or febrile urinary infection with positive urine culture. No episodes of BCG-induced sepsis were recorded in either group.
Conclusions: The prophylactic administration of prulifloxacin in patients with non-muscle invasive TCC of the bladder appears to decrease the severity of irritative LUTS frequently encountered following BCG instillations. This treatment might, therefore, ameliorate bothersome LUTS and increase treatment compliance in this setting.

MP-05.08
The Impact of Urinary pH on Tumor Recurrence after Intravesical Mitomycin C Therapy for Non-muscle Invasive Bladder Tumor within Postoperative 24 Hours
Tseng Y, Chung S
Far Eastern Memorial Hospital, New Taipei, Taiwan

Introduction and Objective: The study aims to evaluate the impact of urinary pH on tumor recurrence in patients with non-muscle invasive bladder urothelial carcinoma (NMIBC) who underwent transurethral resection and intravesical Mitomycin-C (MMC) therapy within postoperative 24 hours.
Materials and Methods: We retrospectively analyzed the records of 49 patients with NMIBC. All patients received tumor resection and intravesical MMC therapy within postoperative 24 hours. We followed these patients by urine cytology and cystoscopy every three months. End points were time to recurrence or radical cystectomy. The urine was obtained before MMC administration.
Results: There were 28 patients with urinary pH greater than or equal to 7 (group 2) and 21 patients with pH less than 7 (group 1). Four patients (19.0%) in group 1 had tumor recurrence and 8 patients (28.6%) in group 2 had recurrence. The tumor recurrence-free survival reported 21.9±10 months in group 1 and 29.17±18.8 months in group 2 ($p=0.54$). We found no significance for age, gender or urinary pH as outcome predictors, except high grade tumor.
Conclusions: Urinary pH may not be a risk factor of tumor recurrence for patients who receive intravesical MMC therapy within 24 hours after transurethral resection for NMIBC.

MP-05.09
Long-Term Follow-Up for Patients Received Low Dose BCG Regimen in T1 Transitional Cell Carcinoma of the Bladder
Kamel A, **El Baz A**, Tosson W, Ryad E, Aziz A
Urology Dept., Theodor Bilharz Research Institute, Giza, Egypt

Introduction and Objective: BCG has been used for more than 30 years and is currently the most effective agent for non-muscle invasive bladder cancer therapy after transurethral resection. The high-grade T1 lesion treated by transurethral resection alone is reported to progress to muscle invasion in 30% to 50% of the patients. Until now, optimal treatment schedule and optimal dose have not been defined as the toxicity related to BCG therapy is significant. In this study we tried to evaluate the efficacy and toxicity of 60 mg intravesical BCG (Pasteur strain) therapy in patients with T1 transitional cell carcinoma of the bladder.
Materials and Methods: From January

MP-05.08, Table 1.

Urine PH	PH≧7	PH<7
Number	28	21
Mean Age (y)	69.32	63.95
Ta/T1	1/27	3/18
Low grade(Ta/T1)	7(0/7)	4 (1/3)
High grade(Ta/T1)	21(1/20)	17(2/15)
Recurrence in low grade	3/7(42.9%)	0/4
Recurrence in high grade	5/21(23.8%)	4/17(23.5%)
Bladder recurrence	8(28.6%)	4(19%)
Mean RFS	29.17 mo± 18.8	21.9 mo± 10

RFS= Recurrence-free survival, mo= months

2000 till December 2009, 100 patients with single T1 transitional cell carcinoma (TCC) of the urinary bladder (grade 3 in 33 patients and grade 2 in 67 patients) were treated by complete transurethral resection followed by a 6-weeks course of 60 mg BCG intravesically. Follow-up ranged from 26-120 months.
Results: Twelve patients (12%) exhibited recurrence with muscle invasion after 6-18 months (7 with grade 3 tumors and 5 with grade 2), all were subjected to radical cystectomy and urine diversion. Twenty-nine patients (29%) showed recurrent T1 tumor after 16-45 months (10 with grade 3 tumors and 19 with grade 2) and were treated by TUR-T followed by a second 6-weeks course of 60 mg BCG intravesically. Recurrence index was 0.82/100 patients /month and the median tumor-free period was 20 months. Regarding toxicity; irritative symptoms occurred in 24% of patients, fever in 9%, microscopic hematuria in 14%; which appeared to be significantly low when compared with the rates reported for higher doses of BCG.
Conclusions: Intravesical therapy of 60 mg BCG is effective in prophylaxis against recurrence and progression of T1 TCC of the bladder. Decreasing the dose resulted in reducing the side effects significantly without delay or cessation of therapy.

MP-05.10
The Value of Frozen Section Examination During Transurethral Resection in Patients with T1 Bladder Cancer
Shen Y[1,2], Yao X[1,2], Zhang S[1,2], Dai B[1,2], Wang C[2,3], Ye D[1,2]
[1]Dept. of Urology, Fudan University Shanghai Cancer Center, Shanghai, China; [2]Dept. of Oncology, Shanghai Medical Oncology,Fudan University, Shanghai, China; [3]Dept. of Pathology, Fudan University Shanghai Cancer Center, Shanghai, China

Introduction and Objective: Transurethral resection of bladder tumor (TURBt) remains the gold standard for management of bladder cancer, but there is evidence of a high rate of understaging for T1 tumor after primary resection. Muscle in the specimen is important for the accurate bladder staging. However, nearly 40% resected bladder specimens were failed to be found muscle after the initial TURBt even done by the sophistic urologists. Therefore a second TURBt was justified for correcting the staging error and removing the residual tumors. The frozen section examination can provide a rapid microscopic analysis of a specimen. In this study, we prospectively investigated the tumor base and whether muscle was present in the specimen using frozen section examination, and discussed its value in the initial TURBt.
Materials and Methods: From Sep 2009 to Oct 2011, a total of 95 consecutive patients with T1 bladder cancer were included in this study. A standard TURBt was performed. Once the tumor was removed, the tumor base was either biopsied using cold-cup biopsy forceps or resected. An aliquot of resected tumor as well as the tumor base were both sent for pathological frozen section examination in a separate, appropriately labeled pot. Then a repeat resection was performed based on the pathological findings either if cancer cells were present in the tumor base or the muscle was not present in the specimen. The results, including positive tumor base, presence of muscle in the specimen, tumor stage, residual tumor and concordance between frozen section and paraffin embedded section were compared.
Results: There were 26(27.4%) patients who had a positive tumor base. There were 54 (56.8%) tumor bases found muscle in the specimen while 34 (35.8%) were not found and 7 (7.4%) were difficult to diagnosis because of the overcauterization of the base specimen. Of 52 (54.7%) patients who underwent a repeat resection, 18 (34.6%) were found residual tumor and 15 (27.8%) were upstaged to muscle invasive tumor. The paraffin embedded section demonstrated 32 (61.5%) specimens were found muscle in patients undergoing the repeat resection. The concordance of muscle in the specimen between the frozen section and paraffin embedded section was 94.7%.
Conclusions: The frozen section examination was justified for the diagnoses of positive tumor base and muscle in the specimen, and it can help to remove the residual tumors and decrease the staging error for T1 bladder cancer during the initial TURBt.

MP-05.11
Neoadjuvant Chemohyperthermia (CHT) for the Treatment of High-Risk Non-Muscle Invasive Bladder Cancer: A Phase I Study
Sousa A
Monforte Comarcal Hospital, Monforte, Spain

Introduction and Objective: Chemohyperthermia, using microwaves technology, has demonstrated its efficacy as adjuvant and neoadjuvant treatment on medium-high risk bladder tumors or after failure of other therapies. We believe that the best way to evaluate toxicity and antitumoral efficacy of a new system, which performs bladder chemohyperthermia through a recirculative hot solution, was a Phase I study of neoadjuvancy in high-risk patients. The objectives were: *main:* to evaluate the tolerancy and side effects of this new neoadjuvant recirculative chemohyperthermia; *secondary:* to evaluate the antitumoral effect of the treatment.
Materials and Methods: Between November 2010 and May 2011 a controlled prospective study was performed including 11 patients with medium-high grade non-muscle-invasive bladder tumors to evaluate the efficacy and security of an intravesical neadjuvant treatment with 80 mgr. of mytomicyn C applied through a new recirculating system of hot fluids (43 ºC) during 60 minutes.
Results: The side effects of the 87 evaluable doses were mild and transitory (CTC: grade I). Its antitumoral efficacy was high, among the 9 patients finally evaluables 6 (66.6%) showed tumoral absence (pT0) -RC- and other 3 (33.3%) showed tumoral reduction > 50% on number/side of the lesions –RP-.
Conclusions: It was demonstrated that this new external hot recirculating system of chemohyperthermia has a high antitumoral efficacy and that side effects during treatment were mild and transitory

MP-05.12
Support Tool for Treatment of Non-Muscle Invasive Bladder Cancer Based on European Clinical Practice Guidelines 2011
Montoya-Chinchilla R, Miñana-López B, Hidalgo-Agulló G, Reina-Alcaina L, Pietricica B, Cano-García M, Izquierdo-Morejón E, Rosino-Sánchez A, Fernández-Aparicio T, Hita-Villaplana G
Morales Meseguer Hospital, Murcia, Spain

Introduction and Objective: Treatment of non-muscle invasive bladder cancer shows great number of therapeutic options based on the TUR and subsequent chemotherapy or immunoprophylaxis according to risk group to which they belong. The best treatment choice is sometimes difficult according to the patient and cancer characteristics. The European guidelines suggest the best treatment for those patients but the correct choice is

sometimes a complex labor. The objectives of this study are: to determine the rate of compliance with current protocols in our hospital during the first half of 2011; and to create a tool to aid in decision-making based on current European guidelines as a baseline for individualized treatment.
Materials and Methods: We studied 39 patients diagnosed with non-muscle invasive bladder cancer from January to June 2011. We analyzed the tumor characteristics and compared the treatment applied in relation to that recommended in our protocol, which coincides with the European clinical practice guidelines. A software tool to aid therapeutic decision making based on risk of recurrence and progression of each patient has been created.
Results: The percentage of patients who have proposed a different treatment to that recommended in our protocol has been of 46.2%. Patients who had low-grade cytology have been treated differently than recommended in 52.9% of cases, patients with moderate-grade cytology in 63.6% of cases, while patients with high grade tumors as cytology have been 20%.
Conclusions: The use of the developed tool could improve the rates of concordance between treatment and actual protocols.

MP-05.13
Understanding and Improving the Utilization of Immediate Intravesical Chemotherapy for Bladder Cancer in the United States
Burks F[1], Liu A[2], Suh R[3], Schuster T[4], Bradford T[5], Moylan D[1], Knapp P[3], Murtagh D[4], Montie J[2], Miller D[2]
[1]William Beaumont Oakland University College of Medicine, Royal Oak, USA; [2]Dept. of Urology, University of Michigan, Ann Arbor, USA; [3]Urology of Indiana, Indianapolis, USA; [4]Genito-Urinary Surgeons, Inc., Toledo, USA; [5]Virginia Urology, Richmond, USA

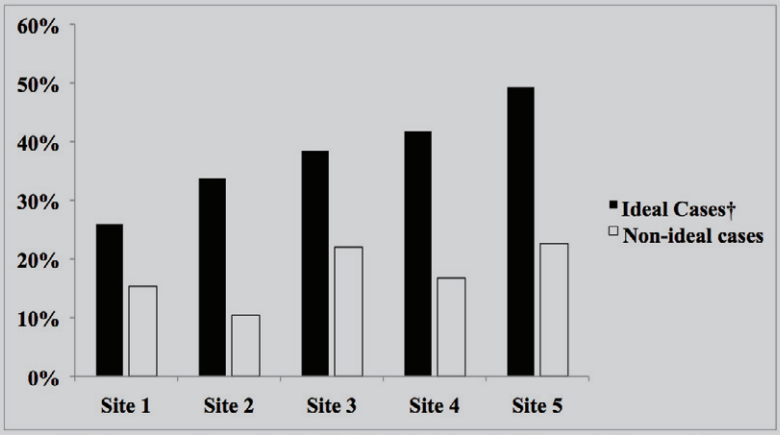
Introduction and Objective: Despite its established efficacy in reducing recurrence rates for urothelial carcinoma of the bladder, immediate intravesical chemotherapy (IVC) is used infrequently in current urologic practice. Accordingly, the Urological Surgery Quality Collaborative (USQC) implemented a project aimed at understanding and improving utilization of IVC following endoscopic treatment of bladder tumors.
Materials and Methods: The USQC comprises 150 urologists from five practices throughout the United States of America. From Sept 2010 through Oct 2011, we prospectively collected clinical and baseline IVC utilization data for patients undergoing bladder biopsy or TURBT at 5 USQC practices. In the second phase of data collection (June-Oct 2011), treating surgeons also documented reasons for not administering IVC. Based on current clinical guidelines, we defined patients with 1-2 clinical stage Ta/T1, completely-resected, papillary tumor(s) as ideal candidates for treatment with immediate IVC. We examined baseline utilization of IVC across USQC practices, as well as reasons for not administering guideline-recommended therapy.
Results: Among 1,638 patients accrued during the study interval, 37.2% (n=609) met the ideal case criteria. Immediate IVC was administered in 36.5% of ideal patients. We observed significant variation in use of IVC across USQC practices for both ideal (range 26%-49%) and non-ideal cases (10%-23%) (p-values <0.02) (Figure). Among ideal cases not receiving IVC, reasons for not treating included, among others, lack of confirmation of malignancy (n=14, 13.6%), uncertainty regarding the benefits of IVC (n=28, 27.2%), and logistic factors such as unavailable medication or insufficient PACU resources (n=23, 22.3%).
Conclusions: Among practices in the USQC, utilization of immediate IVC is higher than reported elsewhere; however, its use still varies widely—even among potentially ideal candidates. Efforts to optimize utilization will be aided by disseminating the evidence supporting the indications and benefits of immediate IVC, and by addressing local logistic factors that may limit access to this evidence-based therapy.

MP-05.14
Comparison of Survival after Surgical and Nonsurgical Treatment in Septuagenarians with Muscle Invasive Bladder Cancer
Ather M[1], Raza S[2], Ghirano R[1]
[1]Aga Khan University, Karachi, Pakistan; [2]Shaukat Kahnum Memorial Cancer Centre, Lahore, Pakistan

Introduction and Objective: Radical Cystectomy (RC) is the gold standard treatment for muscle invasive bladder cancer (MIBC), and its effectiveness has been proven in the elderly patients. However, the alternate treatment modalities like radiation therapy are usually offered or considered due to related co-morbid conditions or fear of operative morbidity. This study aims at determining the overall survival of elderly patients who underwent RC, with those who had an alternate treatment (AT).
Materials and Methods: We retrospectively reviewed the patients, more than 70 years of age, diagnosed with MIBC. Patients were divided into 2 groups, surgical and non-surgical treatment. Overall survival was determined for both the groups, using appropriate tests.
Results: A total of 47 patients were analyzed, with 29 undergoing RC and 18 having AT. Both groups were comparable in terms of mean age, gender distribution, mean Charlson's Index and T stage. There was a single mortality seen with in 30 day period, with overall 30 day

MP-05.13, Table 1.

Utilization of immediate intravesical chemotherapy across USQC practice locations



† Ideal cases are those patients with 1-2 clinical stage Ta/T1, completely-resected, papillary tumor(s)

complication rate of 47% following RC. Overall only 1 patient was alive in the AT group while 10 patients were alive in RC group. The mean survival time was 48 months in RC group in comparison with 21 months in AT group, which was statistically significant. (p=0.02). The 5-year overall survival was 60% and 20% in RC and AT groups, respectively.
Conclusions: RC results in 60% improvement in the overall 5-year survival in elderly patients, as compared with alternative treatment. The early complication rate of surgical and nonsurgical modalities is similar, thus proving the safety of RC in this select group of elderly patients without incurring significant additional morbidity.

MP-05.15
Cystectomy of the Octogenarians: Should Cystectomy Be Offered to the Patient Above 80 Years?
Kingo P, Jensen J
Dept. of Urology, Aarhus University Hospital, Aarhus, Denmark

Introduction and Objective: In Denmark 1600 patients are diagnosed with bladder cancer every year. Patients aged 80 years or more account for 20% of all bladder cancers. With the improved standard of living, lifespan has increased. Consequently, more patients in this age group are diagnosed with bladder cancer are likely to be in good physical shape with only few comorbidities. With the improved minimally invasive surgical procedures and anesthetics, cystectomy should be considered for this patient group following an individual evaluation.
Methods and Materials: From September 1st 2008 to January 31st 2012, 23 patients (15 men) aged 80 years or more diagnosed with bladder cancer or BCG-resistant CIS, underwent radical cystectomy. Mean age was 82 years (range 80-91). A CT-scan of thorax and abdomen was performed to exclude metastatic disease. Most common comorbidities were COPD, NIDDM and hypertension. Seven patients had no comorbidities.
Results: All patients had an open cystectomy with pelvic lymph node dissection and construction of an ileal conduit. Pathological T-stage was 3 pT1, 6 pT2, 11 pT3, 1 pT4a, and 2 patients with CIS. Six patients had nodal involvement (4 N1, 2 N2). None of the patients had evident metastases at the time of surgery. Two patients had perioperative complications, one lesion of the obturator nerve and one lesion of the rectum. Seven patients had minor postoperative complications. Late postoperative complications occurred in four patients. Mean length of admission was nine days, whereas 12 patients were discharged within 1 week. During follow-up of 2 to 34 months 6 patients died; 2 because of bladder cancer, 3 because of other cancers, and 1 of cardiovascular disease. Additionally, four patients were diagnosed with recurrence of bladder cancer (one with pulmonary metastases, two with lymph node metastases and one with local recurrence). Thirteen patients were still alive and without evidence of disease after one week to 40 months of observation.
Conclusions: Patients above 80 years diagnosed with bladder cancer, and in acceptable physical shape, and with few comorbidities should be offered cystectomy. Longer follow-up is needed to evaluate the true survival benefit by radical surgery in this patient group.

MP-05.16
Extraperitoneal Retrograde Radical Cystectomy (RC): the Ideal Approach for Octogenarians with Invasive Bladder Cancer (BC) Who Need Surgery: Long-Term Outcomes
Brausi M, De Luca G
Dept. of Urology, AUSL Modena, Modena, Italy

Introduction and Objective: To evaluate morbidity, overall (OS) and disease-specific survival (DSS) of RC in octogenarians according to surgical approach (peritoneal vs extraperitoneal), ASA score, and type of urinary diversion in the long term.
Materials and Methods: From 2000 to 2007 105 pts 80 year-old or older received RC and urinary diversion for BC at our institution. The mean age was 83.2 years: 73 men and 32 women. There wre 88/105 (83.9%) pts who had one or more co-morbidities. ASA score was used for classifying preop. Risk; 21/105 (20%) were ASA 2, 55/105(52.4%) ASA 3 and 29/105 (27.6%) ASA 4. There were 40/105 pts (38%) who received RC+limphadenectomy through a peritoneal approach while 65/105 pts (62%) had an extraperitoneal retrograde RC. There were 53/105 (50.5%) who had ureterocutaneostomy (UCS) as diversion while 38/105 (36.2%) had Bricker, and 14/105 pts (13.3%) had an orthotopic neobladder. Pathological stage was: Recurrent Tis+T1 in 11/105 pts (10.4); T2b in 15/105 (14.3%); T3a in 24/105 (22.8%); T3b in 37/105 (35.2%); T4 in 18/105 (17.1%). There were 23/105 patients (21.9%) who were N+(pT3-T4). There were 81/105 patients (77.2%) in the intensive care Unit for 1-6 days, and 51/105 patients (48.6%) were transfused.
Results: The mean follow-up was 46.5 months (24-96 months). Perioperative mortality was 8.5% (9/105). Mean hospital stay was 14.5 days (7-35 days). The complication rate (medical and surgical) was 36%. 8.3% of patients required a second operation. Medical and surgical complications by ASA were: ASA2 =11.8%, ASA 3= (50%), ASA4 = 38% respectively. The medical complication rate by surgical approach: extraperitoneal 40.4%, peritoneal 27%. Surgical complication rate was:12.8% with extraperitoneal route vs 29.7% with a peritoneal approach. Re-operation Rate: Extraperitoneal = 0.9% vs 7.6% peritoneal. Mean Blood loss was: 380 cc in extraperitoneal approach vs 780 cc with the peritoneal one. Complications according to diversion: Medical = 45% for UCS vs 34.5% in Bricker vs 39.5% orthotopic. Surgical complications 24% UCS vs 34.5% Bricker vs 37% orthotopic. Re-op rate: UCS = 0 vs 17% in Bricker vs 7.1 in orthotopic, and 82 pts had regular long-term follow-up. After 1 year OS was 60%, after 2 years was 43.6% after 3 year 39.9%. DSS was 63.3% after 1 year and 51.2% after 2 years and 50% after 3 years. No difference in survival was seen between the extra or peritoneal approach.
Conclusions: The results of our study support the use of RC in octogenarians. Mortality and complications were acceptable. Mayor complications was correlated with high ASA score (3-4), urinary diversion (Bricker) and surgical approach (peritoneal route).

MP-05.17
Incidence and Prognostic Implications of Perineural Invasion with Urothelial Carcinoma Following Radical Cystectomy
Flanigan R, Rao M, Vellos T, Barkan G, Quek M
Loyola University Medical Center, Maywood, USA

Introduction and Objective: The incidence and prognostic implications of perineural invasion (PNI) in a cohort of patients undergoing radical cystectomy for primary urothelial bladder cancer was studied.
Materials and Methods: There were 440 patients who underwent radical cystectomy for urothelial bladder cancer with curative intent. The presence of PNI in the cystectomy specimens were evaluated in addition to other histopathologic variables (grade, stage, surgical margin,

lymphovascular invasion, concomitant variant secondary histologic subtypes, and presence of carcinoma-in-situ).
Results: PNI was identified in 101 patients (23%). Patients with extravesical primary tumors, ≥T3 (61/128, 48%) and node-positive disease (34/86, 40%) were more likely to have PNI than those with organ-confined tumors (<pT2; 10/183, 5%) (p<0.001). Median follow-up was 2 years (range: 0.1 to 12.5 years). Recurrence-free survival was worse in the PNI-positive extravesical (p=0.01) and node-positive (p=0.02) tumors compared to those with no evidence of PNI. Overall survival was also worse for PNI-positive patients (p<0.001). On multivariate analysis, PNI was an independent risk factor for recurrence after radical cystectomy (p=0.01, RR=2.8: 95% CI 2.0-10.0). Improved survival after adjuvant chemotherapy was also seen in PNI positive patients (p=0.01).
Conclusions: PNI with urothelial carcinoma is associated with a worse prognosis, especially for extravesical and node-positive disease following radical cystectomy. Adjuvant chemotherapy may benefit those patients who have PNI.

MP-05.18
Morphological and Histochemical Analysis of the Ileal Orthotopic Neobladder Mucosa Transformation
Iatsyna O[1], Stakhovsky E[1], Voilenko O[1], Vitruk Y[1], Stakhovsky O[1], Vernygorodskyi S[2], Yemets A[3]
[1]National Cancer Institute of Ukraine, Kiev, Ukraine; [2]Vinnica National Medicine University Pirogov M.I., Vinnitsa, Ukraine; [3]Institute of Food Biotechnology & Genomics, Kiev .1, Kiev, Ukraine

Introduction and Objective: Radical cystectomy and urinary diversion is the gold-standard treatment for muscle invasive bladder cancer. The progress achieved in reconstructive operations on the urinary bladder today leads to enlargement of prescriptions for enterocystoplasty (neobladder). However, the consequences of using parts of the intestinal tract for different types of urinary diversion are not widely appreciated. The aims and background: to assess the long-term histological, apoptotic and proliferating alterations of the intestinal mucosa of ileal orthotopic neobladders in patients with cystectomy.
Materials and Methods: We prospectively studied the histological modifications in the mucosa of ilea neobladder and conduit in 23 patients who where followed for 2 years. Furthermore we studied differentiation, proliferation apoptotic mechanisms by evaluating Cdx2, Ki-67, bcl-2, p53 and TUNEL as relevant markers. Sections stained with alcian blue and periodic acid-Schiff reagent, which differentially stain mucosubstances. The performed technique was the method of "Double-U" pouch, which has been worked out in our clinic. In all patients, two random ileal biopsy specimens were obtained during surgery from the proximal 5 cm of the ileal segment used for the controls. Postoperatively, 3, 6, 12, and 24months later, cold-cup random mucosal biopsies were obtained during endoscope of the neobladder.
Results: Compared with normal ileal mucosa (there was reduction in villous height starting already during the first 6 postoperative months. This reduction was concomitant with an increase in crypt depth and a slightly increased inflammatory reaction in the lamina propria and submucosa. The goblet cells appeared to have increased in number in biopsies obtained after 3 months and remained increased in number at later times. The ileal epithelium shows changes toward a colonic aspect with villous atrophy and increased goblet cell number although, as in normal ileum, sialomucins are the most abundant secretory products. The overall proliferation rate of the mucosa, calculated as the ratio positive/total nuclei for Ki67, was moderate in groups up to 24 months (P >0.05). No changes in expression of Cdx2, bcl-2, p53 were revealed in our investigation.
Conclusions: According to morphological changes of ileal mucosa of neobladder we determined 3 phases of adaptation: reactive and inflammatory – up to 6 months, compensatory- protective 6-12 months and atrophic – 12 months and more). Despite progressive atrophy, reduction of enterocytes, the ileal neobladder retains cambial compartment peculiar to intestinal phenotype with apoptosis activity that may be evidence of low degree of neoplastic transformation. These changes show that the mucosa of the ileum adapted well to the new environment, i.e. neobladder expansion and contraction as a urinary reservoir.

Moderated Poster Session 6
BPO/LUTS
Monday, October 1
15:15-16:45

MP-06.01

Randomized, Placebo-Controlled Trial Showing that Finasteride Reduces Blood Loss and Prostatic Vascularity Rapidly Within 2 Weeks

Abdullah A, Faridi N, **Javed A**
Liaquat National Hospital, Karachi, Pakistan

Introduction and Objective: To measure expression of vascular endothelial growth factor (VEGF) and microvessel density (MVD) in the prostates of men after transurethral resection of the prostate (TURP) following 2 weeks of treatment with finasteride.
Materials and Methods: Forty men scheduled to undergo TURP were randomized to receive 5 mg of finasteride or placebo daily for 2 weeks before surgery. Sections of prostatic urothelium were stained for VEGF expression and for CD31 to assess MVD. Ten consecutive, non-overlapping high-power fields were analyzed in a blinded fashion. Also their blood loss was measured by calculating Hb. of irrigant fluid.
Results: In all, 18 men received finasteride and 20 placebo; the groups were similar in patient age, resected prostate weight, preoperative catheterization, prostate-specific antigen level, aspirin use, spinal anaesthesia and postoperative diagnosis of prostate cancer. Blood loss was significantly lower in finasteride group. The mean (95% confidence interval) MVD was significantly lower in the finasteride group (60, 55-65) than in the placebo group (71, 64-78; $P < 0.01$). Similarly, the mean expression of VEGF was significantly lower in the finasteride group (47, 43-52 vs 61, 54-67; $P < 0.001$)
Conclusions: Finasteride inhibits angiogenic growth factors leading to reduced vascularity, and this is the basis of its action in reducing haematuria of prostatic origin. The present study shows that finasteride influences the prostatic microvasculature after only 2 weeks' exposure.

MP-06.02

The Effect of Prostate Size on the Short Term Outcome of Thulium:YAG (Revolixr) Vaporesection or Vapoenucleation for the Treatment of Benign Prostatic Hyperplasia

Chung J[1], Oh C[1], Kim S[1], Park S[1], Choi J[2], Yoon J[3], Kang D[3], Min K[3], Chung J[3]
[1]InJe Univ. Haeundae Paik Hospital, Busan, South Korea; [2]Evergreen Urology Clinic; [3]InJe Univ. Busan Paik Hospital, Busa, South Korea

Introduction and Objective:
Thulium:YAG (Tm:YAG) laser operates at a wavelength of 2 um and is delivered as a continuous wave. It offers a rapid ablation capacity and hemostatic properties of prostate tissue. We evaluated the effect of prostate size on the outcome of Tm:YAG for the treatment of symptomatic BPH.
Materials and Methods: A total of 313 men underwent Tm:YAG for BPH from March 2010 to December 2011. All patients were classified into three groups according to their prostate volume (group A, ≤60 cc: n=241; group B, 60~99cc: n=53; group C, ≥100: n=19). All patients underwent a baseline evaluation including international prostate symptom score (IPSS), prostate volume and PSA as well as urodynamic evaluation. Preoperative and postoperative outcome (at 6 weeks) as well as short term adverse events were assessed.
Results: The mean prostate size was 34.7, 74.7 and 111.8 ml for groups A, B and C, respectively. Group C showed a significant higher surgical time (33.0±24.6, 68.7±30.6 and 104.4±33.5 min, $P<0.001$). The average of 4.3, 14.3, and 20.6 cc of tissue were retrieved in each groups. The prostate sizes estimated at 6 weeks postoperatively was 19.6±5.8, 38.9±6.7, and 56.3±7.5 ml, respectively. There were no significant differences in improvement of IPSS scores, Qmax and PVR among the three groups. Only 2 patients needed a blood transfusion and no TUR syndrome was observed in all groups. Perioperative complications were almost evenly distributed among the three groups. Re-catherization after initial voiding trial was necessary in 2 patients. Catheterization time and hospital days showed no significant differences among the three groups.
Conclusions: Tm:YAG prostatectomy is a safe and effective procedure for treating symptomatic BPH independent of prostate size with little perioperative morbidity. Although the long-term durability of this new method has not been confirmed, it may be an important alternative in the treatment of BPH.

MP-06.03

Prostate Vaporization Using the XPS 180W GreenLight System: Have We Now Reached the 'Tipping Point' in the Challenge to Succeed TURP?

Emara A[1,2], **Fernando A**[2], Khan S[1], Kotecha N[1], Hindley R[1]
[1]Hampshire Hospitals NHS Foundation Trust, Basingstoke, UK; [2]Frimley Park Hospital NHS Foundation Trust, Frimley, UK

Introduction and Objective: With evolution in laser vaporization technology, it is emerging as a potential challenge to TURP. The criticisms of the 80W and the 120W systems were the time taken to perform the procedure and that larger glands could not be successfully treated. In this study we assess the transition from the 120W to 180W GreenLight (GL) system.
Materials and Methods: To date we have performed over 800 GL PVP procedures in our unit over the last 7 years, initially with the 80W, with a change over to the 180W from the 120W system in May 2011. Data was prospectively collected for the last 50 cases we performed using the HPS 120W system (group 1,) and the subsequent 50 cases using the XPS 180W system (group 2). This included operative data and early post-operative complications, as well as symptom scores at 3 months.
Results: Average age for both groups were (68.2 and 70.4 years) respectively. One third of the HPS group had prostate volume above 50 cc while nearly two thirds of the XPS group were > 50 cc. The overall mean ± SEM energy applied for both Group 1 and 2 were (185500 ± 10200 and 257500 ± 18080) respectively, which showed statistical significance ($P=0.0008$). Whilst the mean + SEM total lasing time were (30.28 ± 1.530 & 29.53 ± 1.968) similar for both groups with no statistical significance ($P=07648$). This suggests that although bigger prostate volumes were treated and more energy applied with the 180W system; the lasing time is similar and indeed even slightly less time is expended. No cases were converted to TURP and no blood transfusion or significant complications were reported. There were no differences in symptom evaluations at 3 months.
Conclusions: Our transition to the XPS 180 system with the MoXy fibre was seamless with the advantage of offering effective energy application and tissue removal along with a shorter learning curve.

MP-06.04
Bipolar Plasma Vaporization versus Standard TUR in Secondary Bladder Neck Sclerosis: A Medium Term Comparison
Geavlete B, Moldoveanu C, **Geavlete P**
Saint John Emergency Clinical Hospital, Bucharest, Romania

Introduction and Objective: This medium term trial aimed to assess the efficiency, safety and postoperative results of the bipolar plasma vaporization (BPV) by comparison to monopolar transurethral resection (TUR) in cases of secondary bladder neck sclerosis (BNS).
Materials and Methods: A total of 60 patients with BNS secondary to TURP (41 cases), open prostatectomy for BPH (14 cases) and radical prostatectomy for prostate cancer (5 cases) were enrolled in the trial. The inclusion criteria consisted of Q_{max} < 10 ml/s and IPSS >19. All patients were evaluated preoperatively and at 1, 3, 6 and 12 months after surgery by International Prostate Symptom Score (IPSS), quality of life score (QoL) and maximum flow rate (Q_{max}).
Results: The mean operation time, catheterization period and hospital stay were significantly reduced in the BPV series (9.2 versus 17.4 minutes, 18 versus 46.5 hours and 34.5 versus 73 hours). Capsular perforation only occurred in 2 cases of the TUR study arm, while the rate of irritative symptoms was similar in the 2 series (16.7% versus 13.3%). The 1, 3, 6 and 12 months' follow-up emphasized superior parameters for the BPV group by comparison to the TUR series in terms of IPSS (3.4 versus 6.3, 3.6 versus 6.5, 3.7 versus 6.8 and 3.7 versus 7.1, respectively) and Q_{max} (23.8 versus 21.1 ml/s, 23.7 versus 20.6 ml/s, 23.0 versus 20.7 ml/s and 23.4 versus 20.3 ml/s). At the same time intervals, QoL was also significantly improved in the BPV arm (1.2 versus 1.4, 1.4 versus 1.6, 1.4 versus 1.7 and 1.3 versus 1.7). Only 2 patients of the TUR group required re-treatment.
Conclusions: BPV constitutes a valuable endoscopic treatment alternative for secondary BNS. The method emphasized superior efficacy, a satisfactory safety profile and significantly improved short-term follow-up parameters by comparison to standard TUR.

MP-06.05
The Bipolar Plasma Vaporization of the Prostate: A New "Standard" in 2012?
Geavlete B, Jecu M, **Geavlete P**
Saint John Emergency Clinical Hospital, Bucharest, Romania

Introduction and Objective: The study aimed to perform a retrospective long-term analysis of bipolar plasma vaporization of the prostate (BPVP) in average size benign prostatic hyperplasia (BPH) cases concerning the perioperative and follow-up parameters.
Materials and Methods: A total of 170 patients with maximum flow rate (Q_{max}) < 10 ml/s, international prostate symptoms score (IPSS) > 19 and prostate volume between 30 and 80 ml were enrolled in the trial. All cases were evaluated preoperatively and at 1, 3, 6, 12 and 18 months after surgery by IPSS, quality of life score (QoL), Q_{max} and abdominal and transrectal ultrasonography.
Results: The mean preoperative prostate volume was 54.1 ml. All procedures were successfully carried out under spinal anesthesia. The technique emphasized decreased capsular perforation (1.2%), intraoperative bleeding (1.8%), postoperative hematuria (2.9%), blood transfusion (1.2%) and clot retention (0.6%) rates as well as a low mean hemoglobin drop (0.5 g/dl). The operation time (39.7 min), catheterization period (47.5 hours) and hospital stay (2.9 days) were also reduced. The rates of re-catheterization (1.8%), re-hospitalization for secondary hemorrhage (0.6%) and irritative symptoms (12.4%) emphasized satisfactory results. In the long term, minimum urethral strictures (4.7%), bladder neck sclerosis (0.6%) and re-treatment (3.5%) rates were described. During the 1, 3, 6, 12 and 18 months' follow-up, BPVP patients presented superior parameters in terms of IPSS (4.2-5.0), Q_{max} (23.7-24.9 ml/s) and QoL (0.8-1).
Conclusions: BPVP represents a valuable endoscopic treatment alternative for BPH patients, with significantly superior efficacy and satisfactory complication rate. The long term follow-up emphasized durable improvements of the postoperative parameters for this type of approach.

MP-06.06
Bipolar Plasma Enucleation of the Prostate: An Innovative Technique in Large BPH Endoscopic Treatment
Geavlete B, Stanescu F, Geavlete P
Saint John Emergency Clinical Hospital, Bucharest, Romania

Introduction and Objective: The present trial aimed to evaluate a new endoscopic treatment alternative for large benign prostatic hyperplasia (BPH) cases, the bipolar plasma enucleation of the prostate (BPEP), in terms of surgical efficiency and safety as well as short term postoperative results.
Materials and Methods: A total of 30 patients with prostates larger than 80 ml were included in the study. All cases were investigated preoperatively and at 1, 3, 6 and 12 months after surgery by international prostate symptoms score (IPSS), quality of life score (QoL), maximum flow rate (Q_{max}) and abdominal and transrectal ultrasound.
Results: The preoperative parameters included 137 ml for prostate volume, 23.5 for IPSS, 4.3 for QoL, 7.2 ml/s for Q_{max} and 215 ml for the post-voiding residual urinary volume (RV). All procedures were successfully performed under spinal anesthesia. The enucleation and morcellation times were 69.8 minutes and 18.5 minutes, while the morcellated tissue weight was 77 grams. The mean hemoglobin drop in this series was 0.8 g/dl and the mean catheterization period and hospital stay were 26.5 hours and 2.3 days. There were no cases of prostatic capsule perforation, blood transfusion, bladder wall injury secondary to morcellation, re-intervention or clot retention. The rate of early irritative symptoms was 10%. At 1, 3, 6 and 12 months, significant improvements were determined concerning the IPSS (5.3, 4.8, 4.9 and 5.1), QoL (1.2, 1.1, 1.2 and 1.3), Q_{max} (25.9, 25.1, 24.6 and 24.9 ml/s) and RV (34, 25, 22 and 29 ml).
Conclusions: BPEP may represent a promising treatment modality in large BPH cases, characterized by good surgical efficacy, reduced morbidity, fast postoperative recovery and satisfactory follow-up parameters.

MP-06.07
Application of Modified Clavien Classification System to 120W Greenlight HPS Laser For BPH: Is It Useful in Case of Less Invasive Procedures?
Kwon O[1], Lee Y[1], Park S[2], Jeong M[1], Cho S[1], Son H[1]
[1]Dept. of Urology, Seoul National University Boramae Hospital, Seoul, South Korea; [2]Harvard School of Dental Medicine, Boston, USA

Introduction and Objective: To evaluate the accuracy and applicability of the modified Clavien classification system (CCS) in evaluating complications following photoselective vaporization of the prostate using 120W GreenLight high performance system (HPS-PVP).
Materials and Methods: Medical records

of 342 men who underwent HPS-PVP were retrospectively analyzed. Patients were older than 40 years of age with prostate volume >30mL and IPSS ≥8. Patients with prostatic malignancy, neurogenic bladder, urethral stricture, large postvoid residual volume (>250 mL), previous prostatic surgery and urinary tract infection were excluded. All operations were done by a single surgeon, and patients were followed up for uroflowmetry and IPSS postoperatively. All complications were recorded and classified according to the modified CCS, and methods of management were also recorded.

Results: Mean age was 71.6 ± 7.3 years, and mean prostate volume was 50.0 ± 17.0 mL, and 95 cases (27.7%) had volumes greater than 70 mL. Mean total IPSS score was 21.7 ± 7.9 preoperatively and 12.3 ± 8.1 at the first month postoperatively. Total 59 patients (17.3%) had postoperative complications ultil the first month after the surgery. Among them, 49 patients (14.3%) showed grade I complications, 9 patients (2.6%) showed grade II complications, and 1 patient (0.3%) showed grade IIIb complication. No one had complications graded higher than IIIb.

Conclusions: Although the modified CCS is a useful tool for communication among clinicians in allowing comparison of surgical outcomes, this classification should be revised to acquire higher accuracy and applicability in the evaluation of postoperative complications of HPS-PVP.

MP-06.07, Table 1. Patients' demographics and perioperative profiles

Mean ± SD or n (%)	
Preoperative profiles	
Patient demographics	
Age (years)	71.6 ± 7.3
BMI (kg/m2)	26.0 ± 42.7
ASA score	
1	97 (28%)
2	198 (57%)
≥3	32 (9%)
Comorbidities	
Diabetes	58 (16.9%)
Hypertension	163 (47.5%)
PSA (ng/mL)	4.0 ± 3.2
Prostate volume (mL)	50.0 ± 17.0
Transitional zone volume (mL)	28.8 ± 14.4
Symptom scores	
Total IPSS	21.7 ± 7.9
Voiding symptom subscore	12.8 ± 5.0
Storage symptom subscore	8.8 ± 3.6
QoL score	4.2 ± 1.2
Symptom scores (postop 1 month)	
Total IPSS	12.3 ± 8.1
Voiding symptom subscore	5.5 ± 5.2
Storage symptom subscore	6.8 ± 3.7
QoL score	2.6 ± 1.7
Voiding diary parameters	
Functional bladder capacity (mL)	382.0 ± 148.3
Daytime frequency (per day)	10.7 ± 3.0
Nocturia (per night)	2.0 ± 0.8
Uroflowmetric parameters	
Qmax (mL/sec)	8.7 ± 3.1
Voided volume (mL)	178.4 ± 100.5
PVR (mL)	93.5 ± 91.2
Urodynamic parameters	
Maximum cystometric capacity (mL)	363.5 ± 93.2
Impaired detrusor contractility	10 (14.7%)
BOO index	42.7 ± 25.6
Perioperative profiles	
Operative time (min)	60.6 ± 31.9
Laser energy (joules)	92349 ±75833
Catheter duration (hour)	21.6 ± 8.7

MP-06.07, Table 2. Postoperative complications and management

Grade	No. of patients	Symptoms and onset of time (POD)	Management	Duration of management
I	45	Non-specific urinary symptoms	Nothing	
	2	1: Hematuria (third week)		1 week
		1: Hematuria (second week)	Catheterization	3 days
	2	1: Urinary retention (first day)		3 days
		1: Urinary retention (second day)	Catheterization	1 year and follow-up loss
II	6	1: Urgency (first day)	Anticholinergics	1 year
		2: Urgency (third week)		1: 2 months / 1: 9 months
		3: Urgency (forth week)		2: 2 months / 1: 4 months
	2	1: Dysuria and slow stream (first week)	Antibiotics	1 month
		1: Urinary tract infection (first day)		1 week
	1	Voiding difficulty (third week)	Alpha blocker	2 months
IIIa	0	-	-	-
IIIb	1	Hematuria (seventh day)	Coagulation under general anesthesia and catheterization	2 weeks
IV, V	0	-	-	-
Total	59			

POD, postoperative day

MP-06.08
Comparison between Monopolar Trans-Urethral Resection of Prostate and Thulium Laser Enucleation of the Prostate: A Single Institution Experience
Carmignani L, Lunelli L, Bozzini G, Picozzi S, Casellato S
Policlinico San Donato IRCCS, San Donato Milanese, Milan, Italy

Introduction and Objective: In our Institution we made a comparison between two different endoscopic surgical treatments for benign prostatic obstruction. We compared monopolar Trans-Urethral Resection of Prostate (TURP) with Thulium Laser Enucleation of the Prostate (ThuLEP); we reported preoperative, intraoperative and postoperative parameters.
Materials and Methods: From September 2011 to February 2012 we reviewed 30 consecutive patients who underwent ThuLEP and compared them to 30 match-paired patients treated with a standard monopolar TURP approach. The patients were matched for age, prostate specific antigen, prostatic volume and urinary flow parameters. Preoperative, perioperative and postoperative data, including International Prostate Symptom Score (IPSS) and flowmetry measured after 7 and 30 days, complications, time to catheter removal were analyzed between the two groups.
Results: The two groups were statistically similar according to age, prostate specific antigen, prostatic volume and urinary flow parameters. Operative time was lower for ThuLEP (mean time 42.4 minutes) compared to TURP (61.8 minutes). Mean preoperative IPSS was 14 for ThuLEP and 19.5 for TURP. We observed a quicker improvement after ThuLEP (IPSS after 7 days was 8.2 for ThuLEP and 16.5 for TURP). IPSS after 30 days was 8.0 for ThuLEP and 8.7 for TURP. Flow parameters improved significantly after both procedures, but ThuLEP showed a faster increase in fact after 7 days we observed a mean increase of 13.8 ml/sec (preoperative mean value 7.4 ml/sec, postoperative mean value 20.3 ml/sec). Patients who underwent ThuLEP required no blood transfusions, while one patient performing TURP had transfusion. We did not observe any TURP-Syndrome. This complication is virtually impossible during ThuLEP because of saline irrigation. ThuLEP patients had 2 hours bladder irrigation in 40% of total cases (60% had no irrigation) while 95% of TURP patients had bladder continuos wash out (mean time 24 hours). Time to catheter removal had a mean of 24 hours for ThuLEP and 48 hours for TURP.
Conclusions: We observed that ThuLEP is equivalent to the actual gold standard procedure (TURP) considering operative time, complications and postoperative irritative symptoms. Besides this ThuLEP shows better outcomes considering flow parameters improvement, length of bladder catheterization and need for bladder continuous washout.

MP-06.09
Persistence in the Use of Drugs for the Treatment of Benign Prostatic Hyperplasia
McBean A, O'Connor H, Elliott S
University of Minnesota School of Public Health, Minneapolis, USA

Introduction and Objective: We recently reported on the initial treatment of benign prostatic hyperplasia (BPH) among elderly American men. Over half elected watchful waiting. The most popular initial medical treatment was drug therapy with alpha-blockers (ABs) alone, followed by 5-alpha-reductase inhibitors (5-ARI) alone, and by dual therapy. Here we report on the persistence of medication use, and surgical intervention among those treated with drugs.
Materials and Methods: Men 67+ years of age with incident BPH in 2007 through June 2009 were identified in U.S. Medicare administrative data files. Cases had a diagnosis consistent with BPH/LUTS in 2007-9, but not in 2005-6, and were not treated in 2006 with an AB or a 5-ARI. Cases were followed through 2009. In order to accurately capture initial dual drug therapy, we defined it as use of both drugs within 60 days following the first prescription for either an AB or a 5-ARI. Discontinuation of drug therapy was defined as the lack of medication availability for 120 days without surgery being performed.
Results: A total of 5,194 incident cases were followed for an average of 16 months. 1,538 (29.6%) received drug therapy. Initially, 70.4% received ABs alone, 17.5% 5-ARIs alone, and 12.2% both. During the entire follow-up period 21.0% were treated with dual therapy, but still 64.1% received only ABs and 14.9%, only 5-ARIs. Of those only prescribed ABs, 54.2 % stopped treatment: 5.1% had surgery (TURP or minimally invasive surgical treatment, MIST), and 49.1% met our criterion for discontinuation (mean duration of treatment = 150 days). Of the men only prescribed 5-ARIs, 45.4 % stopped treatment: 5.7% had surgery, and 39.7% discontinued treatment (mean duration of treatment = 183 days). Of those prescribed dual therapy, 44.0 % stopped treatment: 5.0% had surgery, and 39.0% discontinued treatment (mean duration of treatment = 213 days).
Conclusions: Single drug therapy, particularly with ABs was the preferred pharmaceutical intervention. Surgery among those who initiated drug therapy was low, 5.0–5.7%, no matter the drug used prior. However, a large percentage discontinued treatment (40-54%). We cannot know if these men discontinued because of the amelioration of symptoms or for other reasons.

MP-06.10
A Prospective Single Centre Study: Safety and Efficacy of Turis Plasma Vaporization (TURIS-V) for the Treatment of Clinical Obstructing Benign Prostate Hyperplasia
Giulianelli R, Attisani F, Gentile B, Albanesi L, Mavilla L, Brunori S, **Mirabile G**, Pisanti F, Vincenti G, Schettini M
Villa Tiberia Rome, Rome, Italy

Introduction and Objective: The morbidity of transurethral resection of the prostate necessitates constant attempts of modifications of standard equipment and technique. Recently the TURIS-plasma vaporization (TURIS-V) technique, which uses the Olympus UES-40 Surgmaster generator and 'button' va-po-resection electrode, was introduced in clinical practice. We evaluated our results with Button TURIS-V for the treatment of bladder outlet obstruction (BOO) due to benign prostatic hyperplasia (BPH).
Materials and Methods: Between June 2010 and June 2011, 2 different urologists, performed 44 Trans Urethral Prostate Resections in saline using Olympus Button Electrode for the treatment of BOO due to BPH. Ten of them presented significant cardiovascular co-morbidity (prior stroke or systemic embolism, coronary artery disease or peripheral vascular disease) and did not interrupt antiplatelet therapy. The average age of the patients was 69 yrs (range 52-86 yrs) and medium follow-up 10 months. The preoperative investigation protocol included digital rectal examination, Prostatic Specific Antigen (PSA), International Prostate symptom Score (IPSS), Quality of Life (QOL), urinalysis with urine culture, uroflowmetry with post-voiding residual urinary volume (PVR) and transrectal ultrasonography assessing prostate volume. Before surgery we performed Hbg

dosage and we repeat it the day after. Catheter duration, hospital stay and eventual transfusions were also valued. The patients were evaluated every 3 months after surgery using PSA, HB dosage, IPSS, QOL, urinalysis with urine culture, uroflowmetry with PVR and after 6 and 9 months by TRUS we assessed residual prostate volume. All the patients showing during follow-up a reduction of Qmax (< 15 ml/sec) or an increasing of IPPS or RPM (>50 ml), underwent an endoscopic second look.

Results: All patients have completed at least 6 months follow-up. In the table are summarized our results.

Materials and Methods: We present preliminary data related to 10 patients, affected by severe LUTS for BPH, no therapy responders, operated between June 2010 and May 2011, with a medium follow-up of 12 mo. (19-7 mo). The average age of the patients was 72 yrs (range 65-86 yrs). All of them presented significant cardiovascular co-morbidity (prior stroke or systemic embolism, coronary artery disease or peripheral vascular disease) on chronic oral anticoagulant therapy. Six out of 10 patients had prior cardiac surgery, 2/10 had atrial fibrillation, and finally 2/10 had prior thrombosis diseases. In this cohort, 4/10 patients (EAs), in the first month, include dysuria, urgency, persisting haematuria and AUR with re-catheterization for clots in 1 case. We observed a single case of bladder neck contracture after 4 months, which required a second look endoscopic surgery.

Conclusions: In this preliminary study, the use of Button TUR-IS Vaporization, also in patients on chronic anticoagulants oral therapy for high risk of cardiovascular diseases, shows a significant improvement of Qmax and Qol, and induces significant reduction of PVR, IPSS. Furthermore AEs were the same as expected on the general population.

MP-06.10, Table 1.

	BASELINE	3 MONTH	6 MONTH	9 MONTH	12 MONTH
IPSS	23 +/- 5.7	8.5 +/- 5.6	6.2 +/- 4.5	7.1 +/- 5.2	6.7 +/- 5.5
QOL	4.4 +/- 1.1	1.6 +/- 1.4	1.5 +/- 1.2	1.3 +/- 1.2	1.2 +/- 1.1
IEFF-5	12 +/- 3.0	16 +/- 3.0	16 +/- 3.0	16 +/- 3.0	16 +/- 3.0
Qmax (ml)	4.7 +/- 3.4	21.0 +/- 8.5	20.4 +/- 8.0	20.1 +/- 8.9	19.9 +/- 8.8
PVR (ml)	112 +/- 119	35 +/- 15	15 +/- 5	15 +/- 5	15 +/- 5
Prostate (gr)	38.9 +/- 15.1		14 +/- 4.6		14 +/- 3.8
PSA (ng/ml)	2.6 +/- 1.7	0.7 +/- 0.5	0.5 +/- 0.4	0.5 +/- 0.3	0.5 +/-

The average weight of tissue resected was 25 gr. The mean operating time was 38 minutes, the median catheterization time was 24 hours and the mean hospital stay was 36 hours. Mean bleeding loss were 0.8 gr/dl. No death during peri or post-operative follow-up. Early Adverse Events (EAs) include dysuria in 22.7% (10pz), urgency in 18.18% (8pz), haematuria in 11.3% (5pz) and AUR with re-catheterization for clots in 13.63% (6pz).

Conclusions: The endoscopic plasma vapo-resection of the prostate in saline (TURIS-V) using Olympus Button electrode for Bladder Outlet Obstruction (BOO) caused by Benign Prostate Hypertrophy (BPH) is a safe technique showing optimal outcomes.

MP-06.11

Safety and Efficacy of TUR-IS-Vaporization in Men on Anticoagulant Drugs: A Preliminary Experience

Giulianelli R, **Mirabile G**, Gentile B, Albanesi L, Mavilla L, Attisani F, Pisanti F, Brunori S, Vincenti G, Schettini M
Villa Tiberia Rome, Rome, Italy

Introduction and Objective: Trans Urethral Resection of Prostate (TURP) represents the gold standard of LUTS treatment for Bladder Outlet Obstruction (BOO) caused by Benign Prostate Hypertrophy (BPH). It is proved that the use of new devices, working with saline solution, significantly reduced the bleeding risk. Since the rate of patients receiving anticoagulant therapies for secondary prevention increased significantly, and the interruption is associated with an increased risk of thromboembolic events, the aim of our study is to critically review the clinical efficacy and safety of TUR-IS Plasma Vaporization (TUR-IS-V) technique, which uses the Olympus UES-40 Surgmaster generator and button va-poresection electrode in patients affected by severe LUTs for BPH receiving therapy for high cardiovascular risk.

Materials and Methods: We present preliminary data related to 10 patients, affected by severe LUTS for BPH, no therapy responders, operated between June 2010 and May 2011, with a medium follow-up of 12 mo. (19-7 mo). The average age of the patients was 72 yrs (range 65-86 yrs). All of them presented significant cardiovascular co-morbidity (prior stroke or systemic embolism, coronary artery disease or peripheral vascular disease) on chronic oral anticoagulant therapy. Six out of 10 patients had prior cardiac surgery, 2/10 had atrial fibrillation, and finally 2/10 had prior thrombosis diseases. In this cohort, 4/10 patients were carriers of the catheters for prior UAR with previous unsuccessful attempts of catheter removal. Patient's evaluation at baseline included IPSS, Qol, maximum peak flow rate, post-voiding volume (PVR), prostate and adenoma dimension rate by TRUS. All patients underwent to standard endoscopic Button TUR-IS-V. We evaluated Hgb rate value before and after surgery, operating time, catheter duration, transfusions rate, hospital stay and complications. The post-operative follow-up examinations were performed every 3 months and included IPSS, QoL, urine culture, maximum peak flow rate and post-voiding residual volume.

Results: All patients have completed at least 7 mo. follow-up. We observed, a statistically significant increment of Qmax ($p<0,001$) baseline, IPSS ($p<0,01$) and QOL ($p<0,01$). In all four patients with pre-operative bladder catheter, we assisted to revival of natural urination. Mean post-surgical hospitalization and catheterization time were 36 and 12 hours respectively. Just in three cases, post surgical Hg value decreased more than 2 point but no patients were submitted to transfusions. We registered no cases of cardiovascular events peri and post-operatory. Early Adverse Events

MP-06.12

Transurethral Prostate Resection Monopolar Versus Plasmakinetics Gyrus Versus Bipolar TURis Surgmaster Scalpel: Single Centre Comparison Study

Giulianelli R, Alanesi L, Gentile B, Attisani F, **Mirabile G**, Mavilla L, Brunori S, Vincenti G, Pisanti F, Schettini M
Villa Tiberia Rome, Rome, Italy

Introduction and Objective: Transurethral resection of the prostate (TURP) is the current optimal therapy for the relief of bladder outflow obstruction, with subjective and objective success rate of 85 to 90%. The aim of this study is to evaluate efficacy and safety of Bipolar TURIS Scalpels versus Plasmakinetic energy versus standard monopolar transurethral resection of the prostate.

Materials and Methods: A total of 320 consecutive patients, mean age 65.5 (48-83aa), with LUTS from BOO to BPE, no responders to drug therapies, were enrolled in our study to undergo surgical endoscopic treatment (TURP). The first 160 patients were enrolled before June 2010, and are part of a historical reference group; the other 160 are part of our new experience with Bipolar Transure-

thral resection in saline (TURIS) using Surgmaster Scalpel from June 2010 until June 2011. All patients underwent standard TURP by a single surgeon: of those, 80 with monopolar, 80 with Gyrus system and 160 with Bipolar TURIS with Surgmaster scalpel. The preoperative investigation protocol included digital rectal examination, Prostatic specific antigen (PSA), International Prostate symptom Score (IPSS), quality of life (QOL), urinalysis with urine culture, uroflowmetry with post-voiding residual urinary volume (PVR) and transrectal ultrasonography assessing prostate volume. Before surgery we performed, in all patients, Hgb dosage, and we repeated it the day after surgery. Catheterization and hospitalization time and eventual transfusions were also registered. Post-operative evaluation included IPSS, IEFF-5, QOL, Uroflowmetry with assessment of PVR, PSA dosage, Hgb measurements; all of them repeated after one month and each 3 months for one year after surgery. After 3 months all the patients underwent TRUs.

Results: We observed, in all the patients, a statistically significant increment compared with Qmax and Qave baseline, IPSS and QOL, but not significant differences between energy sources used. The mean post-surgical hospitalization and catheterization time were similar, 48 and 24 hours respectively. The results (Qmax, Qave, RPM, IPSS, IEFF-5, TRUS) significantly improved as functional outcome from the third month onward, remaining stable in the follow-up. In our experience, no death during peri or post-operative follow-up (meaning the 48 hours post TURP). We registered no statistically significant differences in blood loss for the 3 groups: 9 patients underwent post-surgical hemotransfusions. We needed to perform a "second look" in 11 patients (3.4%), without statistically differences in the three groups, 7 of them because of bladder neck contracture and 4 because of urethral stenosis.

Conclusions: Transurethral resection of the prostate (TURP) for Bladder Outlet Obstruction (BOO) caused by Benign Prostate Hypertrophy (BPE) is a technique, which showed, in our long time experience, no statistical differences in efficacy and safety aside from which energy we used.

MP-06.13
Classification of Perioperative Complications after Holmium Laser Enucleation of the Prostate: The Modified Clavien Classification System
Lee J, Na W
Dept. of Urology, National Medical Center, Seoul, South Korea

Introduction and Objective: The aim of this study was to evaluate the applicability of the modified Clavien classification system (MCCS) in grading perioperative complications of holmium laser enucleation of the prostate (HoLEP).

Materials and Methods: All patients treated with HoLEP for BPH from July 2008 to January 2011 by single surgeon were evaluated for complications occurring up to the end of the 3rd postoperative month and classified them into 5 grades according to MCCS. Grade 1 included minor risk events not requiring therapy (with exception of analgesics, antipyretics, antiemetics, diuretics, electrolytes and physiotherapy). Grade 2 was defined as complications requiring pharmacological treatment with drugs other than such allowed for grade 1 complications, blood transfusions and total parenteral nutrition. Grade 3 was defined as complications requiring surgical, endoscopic or radiological intervention. Grade 4 was defined as life threatening complications (including CNS complications). Grade 5 complications indicated death of patient.

Results: Mean patient age, prostate volume, operation time, hospital stay and follow-up period were 68.8 years old (52~84), 53.2g (23~228), 58.2 minutes (20~230), 4.5 days (2~7) and 9 months (4~27), respectively. Total 81 complications were recorded in 73 out of 401 patients (overall perioperative morbidity rate: 18.2%). Grade 1 complications were recorded in 14.2% (57 cases), grade 2 in 4.0% (16 cases), grade 3 in 1.7% (7 cases), grade 4 in 0.25% (1 case) of patients. Negative outcomes, such as mild dysuria, hematuria, urgency, urge incontinence during this early postoperative period or retrograde ejaculation were considered sequelae and were not recorded. Classification of perioperative complications are shown in table.

Conclusions: HoLEP is a safe surgical technique with mostly mild complications and the MCCS is easily applicable tool for grading perioperative complications.

MP-06.13, Table 1.

Grade	Complication	Management
I(n=57)	Hematuria, ± blood clot retention (n=7)	Bedside bladder irrigation, clot evacuation
	Acute urinary retention after catheter removal (n=9)	Bedside recatheterization
	Transient elevation of serum creatinine (n=3)	Watchful regulation of fluid balance
	Dysuria (n=3)	Analgesics
	Bladder mucosal layer injury (n=13)	
	Transient incontinence (n=22)	
II (n=16)	Intraoperative hemorrhage/hematuria(n=5)	Transfusion
	Permanant incontinence (n=1)	Drug medication
	Urgency (n=2), urge incontinence (n=5)	Drug medication
	Low urinary tract infection (n=3)	Antibiotics
III(n=7)	Urethral stricture (n=3)	Visual internal urethrotomy
	Remnant adenoma in bladder (n=3)	Re-morcellation
	Severe hematuria (n=1)	Transurethral coagulation
IV (n=1)	Cerebral ischemic stroke (n=1)	
V (n=0)	Death (n=0)	

MP-06.14
Correlation of Intraoperatively-Measured Bladder Capacity and Post-Operative Re-Catheterization after Holmium Laser Enucleation of the Prostate (HoLEP)
Choi W, Song S, Bae J, Kim H, Lee Y, Choo M, Oh S, Paick J
Seoul National University College of Medicine, Seoul, South Korea

Introduction and Objective: We hypothesized that increased intra-operative bladder capacity during the operation is a risk factor for post-operative re-catheterization after HoLEP and investigated this hypothesis in a prospective observational study.

Materials and Methods: Between January 2010 and July 2011, we measured the intra-operative bladder capacity of the patients who underwent HoLEP by a single surgeon of our institution. Urine drainage catheter was removed at the following day unless gross hematuria persisted. Then, the patient was checked whether he could void well without residual urine. Catheter was reinserted if he failed to void or the residual urine volume was more than 300 m. Pre-, intra-, and post-operative factors were thoroughly

investigated and compared between the re-catheterized group (group A) and the other group (group B).
Results: Of 166 patients who underwent HoLEP, re-catheterization rate was 5.4% (Table). All the pre- and intra-operative parameters including patient's age, PSA, prostate volume, catheter indwelling duration, operation time, used laser energy, and enucleated volume were not significantly different between group A and B, except only for the median value of intra-operative bladder capacity which was 900 mL and 680 mL in group A and B, respectively ($p<0.001$). Intra-operative bladder capacity was the only significant risk factor for re-catheterization after surgery, adjusting for patient's age, prostate volume, functional bladder capacity measured by voiding diary, and operation time in the multivariable regression analysis (HR=1.006, 95% CI=1.002-1.010, $p=0.002$). ROC curve analysis showed that cutoff value of 790mL in intra-operative bladder capacity had sensitivity of 77.8% and specificity of 72.9% (Area under curve=0.780, $p=0.002$).
Conclusions: Intra-operative bladder capacity was the only risk factor for post-operative re-catheterization. Therefore, we speculate that the surgeon has to minimize the bladder filling capacity during the HoLEP to prevent re-catheterization after surgery.

MP-06.14, Table 1. Preoperative and intraoperative variables in Group 1, 2, and total population. P values were derived from the Mann-Whitney U test.

Average ± SD median (range)	Total (N=166)	Group A (n=9)	Group B (n=157)	P
Age (year)	69.20 ± 6.90 68.00 (51-84)	69.22 ± 6.11 68.00 (60-79)	69.20 ± 6.96 68.00 (51-84)	0.906
PSA (ng/mL)	3.72± 4.36 2.67 (0.33-36.00)	1.94 ± 1.05 1.49 (0.78-4.27)	3.83 ± 4.46 2.75 (0.33-36.00)	0.077
Prostate volume (mL)	59.99 ± 22.66 56.15 (19.8-158.0)	52.93 ± 17.37 50.00 (33.0-91.7)	60.41 ± 22.91 57.00 (19.8-158.0)	0.362
TZ volume (mL)	32.64 ± 18.98 26.50 (4.0-94.0)	28.16 ± 16.43 20.00 (15.1-61.4)	32.90 ± 19.13 27.10 (4.0-94.0)	0.586
Qmax (mL/sec)	9.11 ± 4.21 8.80 (2.0-19.1)	6.65 ± 3.85 6.30 (2.0-13.0)	9.24 ± 4.20 8.90 (2.1-19.1)	0.089
Voided volume (mL)	167.00 ± 112.32 145.00 (12.0-691.0)	141.62 ± 116.0 116.50 (12.0-319.0)	171.99 ± 111.78 153.50 (16.0-691.0)	0.397
Residual urine (mL)	68.95 ± 106.46 30.00 (0.0-590.0)	178.22 ± 212.33 110.00 (0.0-590.0)	68.76 ± 106.56 30.50 (0.0-633.0)	0.201
IPSS_total	19.57 ± 7.17 19 (4-35)	18.89 ± 8.75 16 (7-33)	19.26 ± 7.15 19 (4-35)	0.748
Resected vol/Total (%)	37.46 ± 21.70 34.91 (2.44-171.98)	33.68 ± 20.18 32.42 (7.36-80.46)	37.71 ± 21.53 35.59 (2.44-171.98)	0.422
Enucleation time (min)	50.02 ± 13.84 47.00 (22.0-88.0)	45.66 ± 11.87 42.00 (31.0-65.0)	49.54 ± 14.15 47.00 (22.0-88.0)	0.402
Morcellation time (min)	9.04 ± 7.36 7.00 (0.0-50.0)	6.11 ± 2.57 5.00 (4.0-11.0)	8.85 ± 7.21 7.00 (0.0-50.0)	0.309
Used energy (KJ)	103.27 ± 35.46 104.32 (29.86-202.50)	85.93 ± 17.11 91.32 (57.80-104.93)	100.77 ± 36.30 100.15 (29.86-202.50)	0.173
Distention volume* (mL)	706.10 ± 186.05 690 (250-1420)	897.78 ± 208.37 900 (600-1300)	700.65 ± 176.81 680 (250-1420)	**0.000**
Catheter duration (days)	1.57 ± 0.80 1 (1-5)	1.56 ± 0.72 1 (1-3)	1.57 ± 0.81 1 (1-5)	0.903

MP-06.15, Table 1.

Table Cross tabulation of ejaculation preservation results in each groups. P value was evaluated with the chi-square analysis.

	Group A (n=26)	Group B (n=26)	Total (N=52)	P
Ejaculation (+), N (%)	9 (34.6)	5 (19.2)	14 (26.9)	0.211
Ejaculation (-), N (%)	17 (65.4)	21 (80.8)	38 (73.1)	

MP-06.15
Feasibility of Ejaculation Preservation Technique of Holmium Laser Enucleation of the Prostate (HoLEP)
Paick J, **Choi W**, Song S, Kim H, Lee H, Kim S
Seoul National University College of Medicine, Seoul, South Korea

Introduction and Objective: Recently, ejaculation preservation technique in transurethral prostatectomy and Green Light laser prostatectomy which demonstrated over 80% of antegrade ejaculation preservation rate has been introduced. The authors aimed to investigate the feasibility of ejaculation preservation technique in Holmium laser enucleation of prostate (HoLEP).
Materials and Methods: Among HoLEP candidates, those who felt that their ejaculatory function was satisfactory were allocated to either ejaculation preserving-HoLEP (EP-HoLEP) group (Group A) or conventional HoLEP group (Group B). Unlike conventional HoLEP, pericollicular tissue preserving technique was applied in EP-HoLEP group. There were 52 patients successfully followed up for over 3 months postoperatively and were eligible for analysis. There were 26 patients in each group. The patient was assessed to have preserved ejaculatory function if the patient answered to have antegrade ejaculation regardless of ejaculatory volume during 1, 3, and 6-months follow up at the out-patient department.
Results: There were no differences in pre- and intra-operative factors such as age, prostate volume, operation time, and used laser energy. In group A, there were 3 (11.5%), 6 (23.1%), and 17 (65.4%) cases of normal antegrade ejaculation, antegrade ejaculation with decreased volume, and diminished ejaculatory volume, respectively. In contrast, Group B consisted of 0 (0%), 5 (19.2%), and 21 (80.8%) cases, respectively. Ejaculation preservation rate was 34.6% in group A and 19.2% in group B. The odds ratio was found to be 2.2 but statistical significant was not demonstrated ($p=0.211$) (Table).
Conclusions: Despite application of ejaculation preservation technique to HoLEP, ejaculation function could not be significantly improved. It is speculated that leaving more adenoma tissue around the verumontanum and the apex of the prostate may further improve ejaculation function. However, this method is in conflict with the value of HoLEP which is to completely enucleate prostatic adenoma. Therefore, preservation of ejaculation function seems to be hardly possible when performing HoLEP.

MP-06.16
Enucleation of the Prostate with Diode Laser: A Novel Technique Differs from HoLEP
Xu A, Chen B, Li H, Zheng S, **Liu C**
Dept. of Urology, Zhujiang Hospital, Southern Medical University, Guangzhou, China

Introduction and Objective: We present our novel technique of enucleation of the prostate combined with resectoscope and diode laser, and this technique far differs from HoLEP.

Materials and Methods: There were 35 patients treated due to symptomatic BPH from September to December 2011. One of them was underwent conventional TURP 6 years ago. The instruments we used included continuous-flow resectoscope with laser working element (Karl Storz), 980nm diode laser and Versacut morcellator (Lumenis). The surgical procedure includes: Step 1- the surgical capsule plane at the proximal lateral side of verumontanum was identified using blunt dissection horizontally with oblique beak of resectoscope sheath and the plan was developed retrogradely under median lobe. Step 2- the median lobe was isolated and peeled off the surgical capsule floor. Step 3- the left lobe was enucleated from the surgical capsule mechanically in retrograde and anticlockwise fashion and laser was employed to offer coagulation and precise cutting. The same procedure was underwent for right lobe. Step 4- the enucleated adenoma was morcellated following carefully hemostasis. Step 5-Inspection of the prostatic fossa and coagulation. All patients were followed up for 3-6 months with flowmetry and IPSS.
Results: The mean age was 71.5 and the mean prostate volume was 53.4 (41-80) ml. The mean operative duration was 35(20-50)min. The mean blood loss was 70 (50-120) ml. There were no major complications. The catheter was removed within 24 hours after the operation in all cases. The mean follow-up period was 4.2 months. The improvement in the IPSS (21.8±3.7 vs. 5.5±1.2) and in the Qmax (6.0±1.5 vs. 21.4±3.6) was achieved.
Conclusions: With the great hemostasis characteristic, 980nm diode laser is optimal candidate for enucleation of the prostate. The enucleation technique we used is mechanically dissection with resectoscope and it is quite different from 'sharp' HoLEP technique. The new technique is more likely to mimic the conventional open prostatectomy and it comes up with satisfactory short-term results.

MP-06.17
Efficacy of Combination Therapy with Tamsulosin and Tenoxicam in the Management of Lower Urinary Tract Symptoms Due to Benign Prostatic Hyperplasia (BPH)
Abdulwahab-Ahmed A[1], Mungadi I[1], Ramyil V[2], Dakum N[2]
[1]UDUTH, Sokoto, Nigeria; [2]JUTH, Jos, Nigeria

Introduction and Objective: Patients with symptomatic BPH in our environment stay too long on the surgical waiting list. Their symptoms are mainly relieved by urethral catheterization with its attendant morbidity and poor quality of life, and undue pressure on the attending clinicians. Medical treatment for symptomatic BPH such as alpha blockers is just beginning to gain popularity in our setting. There is a growing interest that adding an anti-inflammatory agent would enhance the benefits of alpha blocker in the treatment of BPH. This study seeks to establish benefits, if any of such combination therapy in an entirely African population.
Materials and Methods: This was a prospective study of 53 patients with clinical diagnosis of BPH between January 2010 and December 2010. The patients in the study were randomized into two, tamsulosin and combination groups. Each patient had IPSS, QoL, Q_{max}, AFR, PV, PVR and VV measured before and after taking either tamsulosin 0.4mg daily alone or in combination with 20mg daily tenoxicam for the study period of four weeks. Paired sample t-test was used to compare means of variables between the two groups.
Results: The mean age of the 53 subjects was 64.57±9.30 year (range 48-90). There was no significant difference in pre-treatment parameters between the two groups. Both groups showed significant improvement in post-treatment parameters ($p=0.001$). PVR is the only post-treatment parameter with statistically significant improvement in favour of combination therapy (95.65±145.00 to 31.38±23.72 ($t=2.215$, $p=0.036$)).
Conclusions: This study has demonstrated that there is benefit in combining tamsulosin with tenoxicam in the medical management of LUTS associated with BPH.

MP-06.18
Effect of BPH Treatment with Alfuzosin on the Quality of Micturition, Erectile Function and Ejaculation in Relation to Late-Onset Age-Related Hypogonadism
Kogan M, Kireev A
Dept. of Urology, Rostov State Medical University, Rostov-On-Don, Russia

Introduction and Objective: The aim of this study was to assess urination improvement by Alfuzosin and sexual function disorders in association with acquired hypogonadism.
Materials and Methods: We examined 40 patients with symptomatic BPH treated with 10 mg/day of Alfuzosin. In all patients the total testosterone level was determined. The efficiency of the therapy was assessed using the IPSS and MSHQ questionnaires at baseline and following 4, 12, and 24 weeks of treatment.
Results: All patients were divided into 3 groups: normal level (>12 nmol/l) - 32.5% of all patients (Group 1), testosterone within the grey zone (8-12 nmol/l) – 30.0% (Group 2), and biochemical hypogonadism– 37.5% (Group 3). The mean testosterone levels in these groups were 16.3±1.32, 11.1±0.79, and 6.9±0.84 nmol/l, respectively. We noted the consistently higher baseline average IPSS scores in the group 3 patients in comparison with Groups 1 and 2 (19.1±1.7 against 15.9±0.11 and 15.4±1.3 respectively). In all three groups, the mean serum testosterone levels consistently decrease, starting from Week 4 and until Week 12, (3.5±0.48, 4.5±0.83, and 6.4±0.32 respectively). At Week 24 the Groups 1 and 3 patients showed a slight tendency toward increase of the mean IPSS score (4.1±0.42 and 7.4±1.8 respectively), while in Group 2 this score continued to decrease (3.8±0.72). The Group 3 patients showed consistently lower average MSHQ erectile function scores, both before the treatment (6.2±1.14 against 8.9±1.01 and 8.7±0.93 in Groups 1 and 2 respectively, $p<0.05$), and at Week 24 of therapy (10.2±1.72 against 12.4±1.14 and 13.0±1.64 in Groups 1 and 2, respectively, $p<0.05$). The MSHQ ejaculation score in Group 3 patients was consistently lower in comparison with the other groups before the treatment (16.3±1.92 against 21.4±2.14 and 22.1±2.21 in Groups 1 and 2 respectively, $p<0.05$). At Week 24 of therapy, the mean score in Group 3 (18.9±1.84) remained at 21.6% and 27.5% lower than that in Groups 1 and 2 (26.1±2.41 and 25.3±2.62 respectively).
Conclusions: More pronounced LUTS, and lower erectile and ejaculation functions were found in the patients with BPH and biochemical hypogonadism. The BPH therapy is most effective in males with normal testosterone levels or with testosterone values within the grey zone.

MP-06.19
Assessment the Addition of Sildenafil to Alpha-Blocker (Tamsulosine) in the Management of Acute Urinary Retention due to Benign Prostatic Hyperplasia
Pourreza F, Mokhtari G, Falahatkar S, Roushani A, Hosseini Sharifi H, Rabiee P
Urology Research Center, Guilan University of Medical Sciences, Rasht, Iran

Introduction and Objective: Acute Urinary Retention (AUR) due to benign prostatic hyperplasia (BPH) is an increasingly prevalent condition in men, and the presenting feature in about 25% of men is undergoing prostatectomy.
Materials and Methods: There is a clinical trial, randomized, single blind study. Eighty patients with AUR related to BPH were randomly assigned to receive either 0.4 mg tamsulosin hydrochloride and 25mg sildenafil citrate or 0.4 mg tamsulosin hydrochloride and placebo. After 48 hours, the catheter was removed and ability to void in each group was assessed. Data were randomized by SPSS 10 and K2, T-test, $p<0.05$ was considered significant.
Results: Differences in age, prostate size and residue was not significant between two groups ($p=0.791$,$p=0.587$, $p=0.364$ respectively). After catheter removal 22 patients (55%) in placebo group and 32 patients (80%) in sildenafil group voided successfully ($p=0.017$). After 1 week, 19 men (47.5%) taking placebo and 28 men (70%) taking sildenafil could void yet ($p=0.041$). The differences between the two groups was statistically significant ($p=0.041$)
Conclusions: Addition of sildenafi citrate to Alpha-blockers is effective in successful voiding after catheter removal for AUR related to BPH. Sildenafil may be recommended for reducing the re-catheterization rate.

MP-06.20
Operative Impacts on Lower Urinary Tract Symptom of Patients with BPH and Prostatitis: Comparison of Post Transurethral Resection State
Sung L, **Noh C**, Chung J, Yu J
Inje University Sanggye Paik Hospital, Seoul, South Korea

Introduction and Objective: Combination of benign prostatic hyperplasia (BPH) with prostatitis aggravates clinical symptoms of BPH and complicates its treatment. Persistent lower urinary tract symptoms (LUTS) are highly resistant to conventional medical management. Recent studies have shown that BPH with prostatitis contributed to poor improvement of LUTS after transurethral resection of prostate (TURP). We tried to find out the operative impacts on LUTS of patients with BPH according to the presence of prostatitis.
Materials and Methods: Between 2005 and 2010, 116 patients who had treated by TURP were investigated. International prostate symptom score (IPSS) was checked before and after TUR-P within 1yr. Patients with prostate cancer were excluded. Group A was defined as patients with BPH without prostatitis, and group B was patients with prostatitis. The presence of prostatitis was determined by pathologic confirmation after TUR-P.
Results: Pathologically group A had 58 patients, and group B had 58 patients. Preoperative IPSS was higher in group B (group A: 20.14 ± 5.61 vs group B: 22.95 ± 5.65, $P=0.001$), Especially preoperative irritative symptom score was notably high. (group A: 6.63 ± 3.57 vs group B: 9.29 ± 4.06, $P=0.015$) There were no statistical differences in average postoperative IPSS. (group A vs group B: 14.63 ± 6.57 vs 14.12 ± 4.91, $P=0.634$) However, the differences of pre and postoperative IPSS were 5.51 in group A and 8.83 in group B. ($P<0.001$).
Conclusions: When the prostate hyperplasia was combined with inflammation, LUTS was more aggravated than in the patient with BPH without prostatitis. And the efficacy of TURP in patients with prostatitis is better than patients without prostatitis.

Moderated Poster Session 7 Prostate Cancer: Basic Research and Staging Monday, October 1 15:15-16:45

MP-07.01

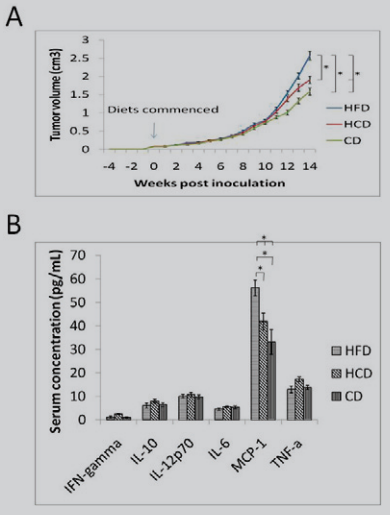
A High-Fat Diet Enhances Proliferation of Prostate Cancer Cells and Activation of MCP-1/CCR2 Signaling

Huang M, Narita S, Tsuchiya N, **Inoue T**, Satoh S, Habuchi T

Dept. of Urology, Akita University Graduate School of Medicine, Akita, Japan

Introduction and Objective: Dietary patterns, such as high-fat (HFD), high-carbohydrate, (HCD), play an important role in prostate cancer progression. However, which of these diets have the greatest effect on tumor progression and its underlying mechanisms remains unclear.
Materials and Methods: We investigated the effect of dietary differences on prostate cancer progression using the *in vitro* and *in vivo* assessment of circulating factors including serum insulin, growth factors, and inflammatory cytokines.
Results: The tumor growth of prostate cancer LNCaP xenograft was significantly higher in the HFD group than in the HCD and control diets (CD) groups ($p = 0.010$; HFD vs. HCD, $p = 0.025$; HFD vs. CD, $p = 0.003$). The mean level of the serum monocyte chemoattractant protein-1 (MCP-1) in the HFD group was significantly higher than that in the HCD and CD groups ($p = 0.024$; HFD vs. HCD, $p = 0.033$; HFD vs. CD, $p = 0.001$). The mRNA levels of CC chemokine receptor 2 (CCR2), which is an MCP-1 receptor, and the expression of activated Akt were the highest in the HFD group. The proliferation of prostate cancer LNCaP and DU145 cells in a medium containing mouse serum from the HFD group was significantly higher than that in a medium containing sera from the other two groups, and CCR2 knockdown by *CCR2* small interfering RNA inhibited HFD-induced proliferation of LNCaP cells.
Conclusions: An HFD-enhanced prostate cancer cell grows more strongly than an HCD or CD. MCP-1/CCR2 signaling may be involved in an HFD-induced prostate cancer progression.

MP-07.01, Table 1.



MP-07.02

Influence of the Neural Microenvironment in Prostate Cancer

Ayala G[1], Miles B[2], Au J[3], Ittmann M[3], Rowley D[3], **Freund, C**[4]

[1]University of Texas, Houston, USA; [2]Methodist Hospital, Houston, USA; [3]Baylor College of Medicine, Houston, USA, [4]Elblandklinikum Riesa, Riesa, Germany

Introduction and Objective: Nerves exhibit inductive and trophic functions in development and adult tissues. They are important for wound repair and tissue homeostasis. Cancer cells induce neurogenesis and perineural invasion results in a survival advantage for cancer cells.
Materials and Methods: To address the functional significance of neural input to tumorigenesis, the major pelvic ganglion (MPG) of male NIH-Foxn1rnu nude rats was excised, sham operated, or injected with Botox or vehicle, and the anterior prostate glands were inoculated with VCaP-luc human prostate cancer cells (2×10^6) for 7 weeks. As a second model we used VCaP-luc orthotopically in nu-nu mice that underwent the same procedures except MPG dissection. Chemical denervation was used to eliminate the potential confounding factors of affecting blood vessels. Laser captured epithelium, stroma and tumor was used for gene array analysis. We next evaluated the gene expression profiles in laser-captured material obtained from prostate cancer patients with spinal cord injuries.
Results: Quantitative histologic image analysis demonstrated that bilateral denervation (Botox injection, MPG dissection or spinal cord injury) resulted in a significant reduction in tumor size, both in the rat and mouse experiments. Gene expression profiling analysis revealed that both chemical and physical denervation produced similar expression profiles that self-clustered in each compartment, confirming that both act through similar mechanisms. The gene profile of tumors shared similarities with tumors in patients with spinal cord injuries, confirming an effect through denervation. Normal, non-neoplastic epithelium exhibited variable atrophic histology, but alterations in gene expression are extensive with a total of 1231 unique genes differentially expressed at a high significance threshold (2237 gene probes, ANOVA $p<0.01$, $SD>0.2$, true positive rate, ~83%). Gene Ontology (GO) analysis of genes downregulated in denervated epithelium compared to intact prostates include translational elongation, ribosome, structural constituent of ribosome, translation, cytosolic small and large ribosomal subunit, RNA binding, ribonucleoprotein complex, and protein binding.
Conclusions: These studies suggest that nerves exert trophic effects on epithelium and prostate cancer cells and are paramount for cancer progression. The studies have lead to new therapeutic approaches to target the neural niche in cancer, including a human neoadjuvant clinical trial with botox.

MP-07.03

The Identification and Characterization of Androgen-Insensitive Cells Prior to Androgen Deprivation Therapy in Prostate Cancer

Terada N[1,2], Shiraishi T[2], Zeng Y[2], Mooney S[2], Luo J[2], Lupold S[2], Kulkarni P[2], Ogawa O[1], Getzenberg R[2]

[1]Dept. of Urology, Kyoto University Graduate School of Medicine, Kyoto, Japan; [2]Depts. of Urology, Oncology, Pharmacology and Molecular Sciences, and The James Buchanan Brady Urological Institute, The Johns Hopkins University School of Medicine, Baltimore, USA

Introduction and Objective: The mechanisms contributing to castration-resistant progression in prostate cancer (PC) are not fully elucidated. PC lesions are heterogeneous and thus, it is important to understand whether among the heterogeneous collection of cell types, androgen-insensitive cells exist prior to androgen deprivation therapy. The identification of these cells may predict patient prognosis as well as provide a better understanding of treatment resistance.
Materials and Methods: LNCaP cells (10,000 cells in 10cm dish) were grown for 40 days in a normal medium. Fifty colonies were selected and 22 subclones were established. In five of these clones, expression levels of androgen receptor

(AR) and prostate specific antigen (PSA) were examined by western blotting and *in vitro* androgen-sensitivities were evaluated to be grown in normal and androgen-depleted medium. Between an androgen-sensitive and -insensitive clone cell invasiveness was examined by Matrigel invasion assays and *in vivo* tumor growth potential was evaluated by xenograft tumor formation assays. Between these clones gene copy number and gene expression were compared using Human SNP array 6.0 and Human Genome U133 Plus 2.0, respectively. Two of the genes differentially expressed between these clones were knocked down by in LNCaP or PC3 cells and the influences on AR activation, cell proliferation, cell invasion and *in vivo* tumor formation were evaluated. The expression levels of these genes in PC tisssue samples were examined by real-time PCR.

Results: LNCaP subclones with different androgen-sensitivity were established at the same passage numbers. Their androgen-insensitivities were correlated with their PSA expression levels. LNCaP-cl1 had higher PSA expression and androgen-insensitivity but lower invasiveness and tumor growth potential than LNCaP-cl5. In these clones DNA copy numbers were significantly different in several regions, indicating that these clones contain genetically different cells. The expression levels of Sprouty1 (SPRY1) and Jagged1 (JAG1) were significantly lower in LNCaP-cl1 than in LNCaP-cl5. Both genes are regulated by miR-21, an androgen-regulated microRNA. SPRY1 knockdown in LNCaP cells enhanced PSA expression and cell proliferation under epidermal growth factor stimulation without androgen. JAG1 protein administration in LNCaP cells enhanced cell invasion and JAG1 knockdown in PC3 cells suppressed cell invasion and tumor formation by down-regulating N-cadherin expression. In PC tissue samples SPRY1 expression levels were significantly lower in patients with PSA recurrence after surgical treatment ($p=0.0076$) and JAG1 expression levels were significantly higher in Gleason sum (GS) 8-9 disease than in GS 5-6 ($p=0.0121$).

Conclusions: A random population of LNCaP cells comprises a heterogeneous group of cells with different androgen-sensitivities and invasiveness. The expression differences in SPRY1 and JAG1 caused the phenotypic differences between these clones and they may represent novel biomarkers for differentiating aggressive PC cells.

MP-07.04

Peripheral Zone Volume, Density, Ratio and Its Relation to Prostate Cancer and BPH

Robinson S, Karim O, Laniado M, Motiwala H

Wexham Park Hospital, Slough, UK

Introduction and Objective: Peripheral zone volume, density and ratio to transition zone use in the diagnosis of cancer.

Materials and Methods: There were 713 patients who had biopsy; 410 were benign and 265 had cancer (38 not assigned zones because of high grade cancer destroying the interface). We compared the biopsy cancer patients with 145 radical prostatectomies and then benign biopsy patients.

Conclusions: The ratio could be discriminatory between benign disease and cancer (no confounding effect of varying gland sizes and PSA levels). There is a higher transition zone density in surgical patients due to the small transition zone. This could be a useful parameter in its own right? If the ratio of peripheral volume to transition volume is greater than one it is likely malignant and if less, benign.

MP-07.04, Results:

	Age	**PSA**	**U test P value**
Benign biopsy	63	8	
Cancer biopsy	68	16.4	<0.001
Surgery cases	62	7.5	<0.001
Biopsies.	**Cancer n =265 Volume cc**	**benign = 410**	**U test P value**
Whole gland	46	58	<0.001
Transition zone	21	30	<0.001
Peripheral zone	25	27	>0.05
	Density ng/ml/cc		
Mean whole gland	0.41	0.16	<0.001
Transition zone	1.23	0.39	<0.001
Peripheral zone	0.76	0.34	<0.001
Comparison of biopsy cancer with surgical pre operative parameters.			
Cancer on biopsy	**n =265 surgery Volume cc**	**n =145**	**U test P value**
Whole gland	46	43	>0.05
Transition zone	21	17	<0.001
Peripheral zone	25	26	>0.05
	Density ng/ml/cc		
Whole gland	0.41	0.2	<0.01
Transition zone	1.23	0.93	>0.05
Peripheral zon	0.76	0.33	<0.001
Comparison of benign biopsy with surgical pre operative parameters			
	Benign biopsy n =410	**surgery n = 145**	**U test P value**
Mean whole gland	58	43	<0.001
Transition zone	30	17	<0.001
Peripheral zone	27	26	>0.05
	Density ng/ml/cc		
Mean whole gland	0.16	0.2	<0.001
Transition zone	0.39	0.93	<0.001
Peripheral zone	0.34	0.33	>0.05

Ratio of peripheral zone to transition zone and peripheral zone to whole gland.

	Volume		**Density**	
biopsy	Ratio PZ/TZ	PZ/WG	Ratio PZ/TZ	PZ/WG
Benign	0.9	0.46	0.9	2.1
Cancer	1.2	0.54	0.6	1.8
Surgery	1.52	0.6	0.35	1.65

MP-07.05

Usefulness of P574R Polymorphism of Matrix Metalloprotease 9 (MMP-9) in the Diagnosis and Prognosis of Prostate Cancer

Gil-Ugarteburu R[1], González Rodríguez I[2], Rivas del Fresno M[2], Pérez-Carral J[2], Fernández Somoano A[3], Tardón García A[3]
[1]Div. of Urology, University Center Jove Hospital Foundation, Gijon, Spain; [2]Div. of Urology, Cabueñes Hospital, Asturias, Spain; [3]Dept. of Epidemiology, Oviedo University, Asturias, Spain

Introduction and Objective: An increase in the activity and expression of matrix metalloprotease 9 (MMP-9) has been noted in tumoral prostate tissue. The P574R polymorphism is found in a hemopexin domain of MMP-9, a binding site of the endogenous inhibitors which regulate the proteolytic activity of the MMP-9. The aim of this study is to analyze the association of the P574R polymorphism and the risk of having prostate cancer and to study the link with prognosis of prostate cancer.
Materials and Methods: A hospital-based prospective cohort of 245 was studied. All the patients were suspected of having prostate cancer and were subjected to a blood extraction and to a prostate biopsy later. The identification of the genotype of the P574R polymorphism was carried out based on the leukocyte DNA using RFLP technique (restriction fragment length polymorphism). The Stata/SE 8.2 program was used for the statistical analysis.
Results: The allelic frequencies were 95% wild allele (C) and 5% polymorphic allele (G). The population is Hardy-Weinberg balanced (p=0.076). No statistical differences were found comparing genotypical frequencies based on the prostatic biopsy results (p=0.09). Statistically significant differences were found comparing genotypical frequencies based on the prostatic biopsy results in the subgroup of patients with PSA levels of 4-10 ng/dl (p=0.031). This subgroup was subjected to a logistical regression study and significant data was obtained (OR =2.92; 95%CI[1.05-8.11] p= 0.031; OR age = 3.38; 95%CI[1.20-9.53] p=0.021; OR age and PSA= 3.33 95%CI[1.17-9.43] p=0.023). No statistical differences were found comparing genotypical frequencies based on Gleason score (p=0,645), nor when comparing patients without tumor with patients with prostate cancer stratified by Gleason score (p=0,18; p=0,083; p=0,405). No statistical differences were found when the link with tumoral stage (TNM) was studied (p=0,952; p=0,632; p=0,763)
Conclusions: The presence of one polymorphic allele at least in the genotype of P574R polymorphism of MMP-9 increases the risk of suffering prostate cancer three times in the subgroup of patients with PSA level 4-10 ng/dl. P574R polymorphism is not associated with specific aggressiveness of prostate cancer. P574R polymorphism could be used as a diagnostic marker of prostate cancer at PSA levels 4-10 ng/dl.

MP-07.06

Genetic Polymorphisms in SLCO1B3 and SLCO2B1 May Influence the Racial Difference in the Response to Androgen Deprivation Therapy in Advanced Prostate Cancer

Fujimoto N[1], Kubo T[2], Inatomi H[3], Hoai B[1], Yoshida T[1], Shiota M[4], Matsumoto T[1]
[1]Dept. of Urology, University of Occupational and Environmental Health, Kitakyushu, Japan; [2]Dept. of Public Health, University of Occupational and Environmental Health, Kitakyushu, Japan; [3]Dept. of Urology, Munakata Suikoukai General Hospital, Fukuma-Machi, Japan; [4]Dept. of Urology, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan

Introduction and Objective: Japanese patients experience better cause-specific and overall survivals after androgen deprivation therapy (ADT) initiation compared with Caucasians. The underlying mechanisms of these ethnic differences are little understood. SLCOs encode organic anion transporting polypeptides (OATPs) that transport a variety of exogenous and endogenous substances including androgens. *SLCO1B3* and *SLCO2B1* are polymorphic, and single nucleotide polymorphisms (SNPs) alter transport efficiency of androgen. In the present study, we investigated association between SNPs in *SLCO1B3* and *SLCO2B1* and response to ADT and compared genotype frequencies of those genes between Japanese and Caucasians.
Materials and Methods: A cohort of 252 Japanese men, 152 with prostate cancer and 100 without prostate cancer, were genotyped for *SLCO1B3* (rs4149117) and *SLCO 2B1* (rs12422149). Genotypes were confirmed by sequencing of genomic DNA extracted from blood cells. In 72 men treated with primary ADT for advanced prostate cancer, association between SNPs in *SLCO1B3* and *SLCO2B1* and time to progression (TTP) during ADT was examined.
Results: *SLCO1B3* and *SLCO2B1* alone did not influence TTP during ADT. However, patients carrying both active androgen transport *SLCO1B3 (TT/TG)* and *SLCO2B1 (GG)* polymorphisms exhibited a median TTP of 7.5 months shorter than patients with impaired androgen-transporting activity *SLCO1B3* (GG) and *SLCO2B1(AG/AA)* polymorphisms (19.0 vs 11.5 months, p = 0.003). Men with combined impaired androgen transport genotypes comprised 30.2% (76/252), while men with combined elevated androgen transport genotypes comprised 19% (48/252). These frequencies were significantly more and less, respectively, compared with reported data in Caucasians.
Conclusions: Our results suggest that difference in genotype frequencies of *SLCO1B3* and *SLCO2B1* may be associated with racial differences in response to ADT.

MP-07.07

Mechanism and Improvement of 5-Aminolevulinic Acid-Mediated Photodynamic Therapy of Prostate Cancer

Fukuhara H[1], Inoue K[1], Shuin T[1], Kurabayashi A[2], Furihata M[2], Fujita H[3], Sasaki J[3], Utsumi K[3]
[1]Dept. of Urology, Kochi Medical School, Nankoku, Japan; [2]Dept. of Pathology, Kochi Medical School, Nankoku, Japan; [3]Dept. of Cytology and Histology, Okayama University Graduate School of Medicine, Okayama, Japan

Introduction and Objective: The aim of this study was to clarify the mechanism of the accumulation of 5-aminolevulinic acid (ALA)-dependent protoporphyrin IX (PpIX), ALA-photodynamic therapy (PDT)-induced cell death and enhancing efficiency by a ferrochelatase inhibitor in prostate cancer PC-3 cells. We aimed focal therapy for prostate cancer by ALA-PDT to develop a new therapeutic modality in clinical setting and investigated the potential of ALA-PDT.
Materials and Methods: The accumulation of ALA induced PpIX in PC-3 cells was observed by fluorescence microscopy and measured by flow cytometry analysis. The efficiency of ALA-PDT was analyzed by flow cytometry and assessed by cell death, caspase-3 activity and mitochondrial membrane potential. The ALA-PDT promoting effects of ferrochelatase inhibitors, such as deferoxamine and NOC-18, were also analyzed. We confirmed these results obtained *in vitro* with an animal model using nude mice.

Results: ALA-induced PpIX accumulation was increased in time and ALA concentration-dependent manners. ALA-PDT-induced cell death was both apoptosis and necrosis. Caspase-3 like activity was increased and the levels of mitochondrial membrane potential were decreased. Inhibition of ferrochelatase by deferoxamine and NOC-18 led to increase of PpIX accumulation and enhanced effect of ALA-PDT in PC-3 cells. *In vivo*, the degeneration of tumor tissue by ALA-PDT was observed within a broader range and led to apoptosis and necrosis. Apoptosis index of the degeneration tissue by single strand DNA stain was increased by ALA-PDT.
Conclusions: The results demonstrated that ALA-PDT induced cell death with accumulation of PpIX in PC-3 cells in both *vitro* and *vivo* systems. ALA-PDT induced PC-3 cell death by the mechanisms of both necrosis and apoptosis through a caspase-independent mitochondrial pathway. Inhibition of ferrochelatase enhanced these effects suggesting that ferrochelatase played a crucial role in ALA-PDT. ALA-PDT could be a new modality for focal therapy of prostate cancer as photodynamic therapy.

MP-07.08
Crucial Role of Dickkopf-3 in Prostate Morphogenesis *in vitro* and *in vivo*
Kawano Y[1,2], Romera D[2], Bengoa N[3], Maltry N[4], Walker M[5], Eto M[1], Waxman J[2], Niehrs C[4,6], Kypta R[2]
[1]Dept. of Urology, Faculty of Life Sciences, Kumamoto University, Kumamoto, Japan; [2]Dept. of Surgery and Cancer, Imperial College London, London, UK; [3]Cell Biology and Stem Cells Unit, CIC BioGUNE, Bilbao, Spain; [4]Div. of Molecular Embryology, German Cancer Research Centre, Heidelberg, Germany; [5]Centre For Pathology, Imperial College London, London, UK; [6]Institute of Molecular Biology, Mainz, Germany

Introduction and Objective: To investigate the role of the tumour suppressor Dickkopf-3 in prostate acinar formation *in vitro* and *in vivo*.
Materials and Methods: To establish Dkk-3 depleted RWPE-1 cell lines (RWPE-1/D3-sh cells), RWPE-1 cells were stably transfected with Dkk-3-targeting pSM2-shRNAmir (Open Biosystems). The cells transfected with non-targeting vector (RWPE-1/NS-sh) were used as a control. For 3D acinar morphogenesis assays, either RWPE-1/NS-sh or RWPE-1/D3-sh cells were plated on a thin-layered bed of Matrigel on 8-chamber glass slides and cultured with Keratinocyte SFM containing 2% Matrigel. For analysis of Dkk-3 knockout mice and their wild-type littermates, prostates were dissected from 6-8 week-old mice, fixed with 4% paraformaldehyde and embedded in paraffin. Sections were analysed by H&E and immunofluorescent staining.
Results: RWPE-1/D3-sh cells showed more than a 90% reduction in Dkk-3 mRNA and protein expression, compared to both parental and RWPE-1/NS-sh cells. There were no apparent morphological differences between the cell lines when cultured in 2D. However, in 3D assays, while RWPE-1/NS-sh cells underwent normal acinar morphogenesis with spherically arranged polarisation, RWPE-1/D3-sh cells formed disorganised cell aggregates. Immunofluorescent staining for phosphotylated histone H3 revealed increased cell division in Dkk-3 depleted acini. Simultaneous staining for beta4-integrin and beta-catenin suggested that partitioning of basal and lateral membranes in Dkk-3 depleted acini was not affected. However, gene reporter assays and analysis of target gene expression indicated changes in Wnt and TGFb signalling in RWPE-1/D3-sh cells. These results indicate that Dkk-3 knockdown results in changes in key cell signalling pathways, abnormal cell division and disorder of apical membrane integrity, leading to the disruption of acini. Analysis of prostates from mice showed an increased Ki-67 index in all lobes of Dkk-3 knockout mice, compared to wild type, consistent with the results in the *in vitro* 3D morphogenesis assay. H&E and immunofluorescent staining for ZO-1 and E-Cadherin revealed subtle changes in cellular structure during prostate development.
Conclusions: These results suggest that Dkk-3 controls cell proliferation and polarisation to secure organised acinar structure of prostate epithelial cells, and suggest that loss of Dkk-3 expression contributes to prostate cancer development due to aberrant cell proliferation and impaired cellular structure.

MP-07.09
The Role of the Receptors of the Kallikrein-Kinin System in the Prostate Proliferative Processes
Kogan M[1], Chibichyan M[1], Ilyash A[1], Matsionis A[2], Povilaitite P[2]
[1]Dept. of Urology, Rostov State Medical University, Rostov-On-Don, Russia; [2]Dept. of Morphology, Rostov Regional, Rostov-On-Don, Russia

Intoduction and Objectives: It is known that the components of regulatory systems, in particular, the kallikrein-kinin system (KKS), play an important role in control of the cell morphogenesis, neoangiogenesis, malignant growth, and other pathological conditions, including prostate diseases. The main KKS effector - bradykinin - acts through the two types of B-kinin receptors, B1 and B2. Our aim was to study the role of bradykinin as the key KKS effector acting through the B1 and B2 receptors in the prostate tissue in cases of BPH and PCa.
Materials and Methods: We studied the material of multicore puncture biopsies in 15 males with PC (B2 - 6 patients, ≥B3 - 9 patients) (mean age 69.7±7.52), PSA - 7.38±3.1 ng/ml and 15 males with BPH (mean age 66.7±8.53). Immunohistochemical reactions were performed in a DakoAutostainer Plus automated robotic unit by the standard protocol. Primary antibodies to Bradykinin B1 Receptor (BDKRB1), rabbit polyclonal, 1:100 (Abcam), Bradykinin B2 Receptor (BDKRB2), rabbit polyclonal, 1:1000 (Abcam) were used.
Results: In the BPH cases, there was no expression of B1 in the gland cells. The specific reaction with anti-B1 antibodies in the gland epithelium occurred only in the malignant PIN acini and foci. The B1 receptor localization was intracytoplasmatic, in the apical part of the cells. Immunostaining with anti-B2 antibodies in the PCa group showed their expression mainly in the prostatic stroma, both in the PCa and the BPH cases. No change in the B2 expression was found in the stroma of high-grade cancers. Staining was seen in all cases of PCa, and its intensity was the same.
Conclusions: The B1 receptors predominate on the membrane of epitheliocytes in cases of PCa, while B2 is found in the stroma. This fact points out to a functionally active KKS in the PCa, the effector impact of which on the prostate tissue is achieved through different types of receptors. In the cases of BPH, there is no expression of B1 in the gland epithelium, while B2 is localized in the stroma and is easily identified. The nature of the B1 expression shows that it can be used as a PCa marker.

MP-07.10
Angiotensin-Converting Enzyme and Kallikrein as a New Concept in the Study of Prostate Cancer
Kogan M[1], Chibichyan M[1], Ilyash A[1], Chernogubova E[2]
[1]Dept. of Urology, Rostov State Medical University, Rostov-On-Don, Russia; [2]The

South Scientific Center of The Russian Academy of Sciences, Rostov-On-Don, Russia

Introduction and Objective: The role of renin-angiotensin system in the development of the prostate neoplastic transformation has attracted a lot of attention over the latest period. The low occurrence rate of prostate cancer (PCa) in hypertensive patients on angiosin-converting enzyme (ACE) and angiotensin II (AT_1) receptors blockers is known, and this fact points to the involvement of the renin-angiotensin system in the development of the PCa. The purpose of this paper was to analyze the disruption of the activity of ACE and Kallikrein (K) in the blood and prostate secretion in cases of PC.
Materials and Methods: The activity of K and ACE in the blood serum and prostate secretion in 18 patients (Group I) with PCa was studied (T2 - 11 patients, T ≥3 - 7 patients) (mean age 64.7±2.2), PSA - 8.4±3.1 ng/ml. The Group II included 20 males with BPH (mean age 65.3±1.6). The control group (Group III) consisted of 20 healthy males (mean age 40.3±1.3).
Results: The activity of ACE and K in the blood serum of Group I patients was 49.7% (p_b<0.001) and 91.1% (p_b<0.001), respectively, and it was higher than in Group III patients. The ACE activity in PC cases was 90.9% (p_b<0.001), and it was higher compared to BPH cases. The K activity in Group 1 did not differ from that in Group II patients. The ACE and K activity in prostate secretion Group I patients were 56.7% and 364.6%, respectively, which was significantly higher compared to Group III patients (p<0.001). Comparative analysis of the specific nature of the proteolytic processes showed that K activity in the prostate secretion was lower 39.2% and it was higher, than in Group II (p_b<0.001), while ACE activity was 41.3%, which was lower than in the BPH cases (p_b<0.001).
Conclusions: Higher ACE and K activity in the blood and in the prostate secretion leads to accumulation of the peptide regulators of cell proliferation and angiogenesis: angiotensin II and bradykinin in PCa patients. The angiotensin and bradykinin receptors may be regarded in the future as components of a targeted therapy of PCa.

MP-07.11
The Association of p53 Gene Polymorphism at Codon 72 and Prostate Cancer Risk: Case Control Study

Grobarcikova S[1], **Tomaskin R**[1], Dusenka R[2], Kmetova Sivonova M[2], Dobrota D[2], Kliment J[1]
[1]Dept. of Urology, University Hospital, Martin, Slovakia; [2]Dept. of Biochemistry, Jessenius School of Medicine, Martin, Slovakia

Introduction and Objective: The tumour suppressor gene p53 is considered to play important role in the development of many human malignancies. Genetic changes in p53 gene can lead to production of malfunctioning protein. We investigated the association between p53 polymorphisms at codon 72 and the risk for development of prostate cancer.
Materials and Methods: In total 334 patients, 106 with histologically proven prostate cancer, 158 patients with BPH and 70 age-matched controls without any suspicious affection of prostate, were included in the study. The polymorphisms at codon 72 were analysed using PCR-RFLP method from blood samples with 3 resulting genotype variants arg/arg, arg/pro and pro/pro. Descriptive statistics and chi-square tests were performed; the associations between genotype variants and cancer/BPH were assessed by calculating the relative risks and odds ratios. A two-sided p value < 0.05 was considered statistically significant.
Results: Only 5 cases of pro/pro variant (all in BPH group) were detected in our cohort; therefore, they were excluded from further analysis. Thus 106 prostate cancer and 223 non-cancer patients remained for the final analysis. Genotype arg/arg was found in 45% of cancer and in 38% of non-cancer specimen without significant difference (p=0.28). There was also no significant difference between each of the 3 groups (similar proportion of both genotype variants in cancer, BPH and control groups with similar chi-square test results and no significant p values within range 0.25-0.77). The trend for higher risk of prostate cancer growth was observed with genotype arg/arg compared to arg/pro (RR=1.2; OR=1.32, 95% CI 0.83-2.10), but the association was not significant (p=0.246). In a prostate cancer subgroup analysis, neither arg/arg nor arg/pro genotypes were related to initial PSA level and age at the time of prostate cancer diagnosis or more risky prostate cancer (Gleason score <7, ≥7).
Conclusions: Our findings suggest that single p53 polymorphism at codon 72 does not influence the development of prostate cancer, as well as BPH. The observed positive trend for higher risk of prostate cancer with genotype arg/arg was not statistically significant.

MP-07.12
The Association of SRD5A2 Gene Polymorphism at Codon 89 and Prostate Cancer Risk: Case Control Study

Dusenka R[2], **Tomaskin R**[1], Grobarcikova S[1], Kmetova Sivonova M[2], Dobrota D[2], Kliment J[1]
[1]Dept. of Urology, University Hospital, Martin, Slovakia; [2]Dept. of Biochemistry, Jessenius School of Medicine, Martin, Slovakia

Introduction and Objective: Testosterone is essential for developing prostate cancer (PC), thus activity impairment of 5-alpha-reductase type II enzyme (encoded by the SRD5A2 gene) may be related to PC. We investigated the association between SRD5A2 polymorphism at codon 89 and the risk of PC.
Materials and Methods: In total, 281 patients (95 histologically proven PC, 79 BPH and 107 age-matched controls without suspicious affection of prostate) were included in the study. The polymorphism at codon 89 were analysed using PCR-RFLP method from blood samples with 3 resulting genotype variants val/val (VV),val/leu (VL) and leu/leu (LL). Descriptive statistics and chi-square tests were performed; relative risks and odds ratios were calculated for particular genotype variants.
Results: Genotypes VV, VL and LL were found in 41.6%, 50.5% and 7.8% study patients with significant difference in frequencies among particular groups (X^2 test, p=0.021), but only due to unbalanced frequency of LL variant, which was very low in PC and BPH groups (3.2% and 5.1%) compared to 14% in control group. When LL variants were excluded from analysis and BPH was grouped with control, the VV and VL frequencies were similar (X^2 test, p=0.154), with slightly higher rate of VL in PC (60.9%) compared to 51.5% in non-cancer group. The trend for lower risk of PC was observed with genotype VV compared to VL (RR=0.78; OR=0.683, 95%CI 0.407-1.145), but the association was not significant (p=0.148). The substantial difference in risk was observed when comparing VL and LL genotype (RR=2.90; OR=4.12, 95%CI 1.166-14.587) with significant association (p=0.028), but low number of LL variants in study cohort must be considered. In PC subgroup analysis, neither VV nor VL genotypes were significantly related to PSA and testosterone level and age at the time of diagnosis or to more risky prostate cancer (Gleason score ≥7).
Conclusions: Our findings suggest that

SRD5A2 gene polymorphism at codon 89 does not have major impact on the development of prostate cancer. Although LL variant was associated with lower risk of PC, its frequency in our cohort was generally low. Trend for higher risk of PC associated with genotype VL was not statistically significant.

MP-07.13

Fer Tyrosine Kinase Regulates Prostate Cancer Cell Motility Through alpha-Dystroglycan Glycosylation

Yoneyama T[1], Tobisawa Y[1], Yamamoto H[1], Hatakeyama S[2], Mori K[2], Imanishi K[2], Tokui N[2], Okamoto T[2], Sugiyama N[2], Suzuki Y[2], Ishimura F[2], Kudo S[2], Yoneyama T[2], Koie T[2], Kamimura N[2], Ohyama C[1,2], Fukuda M[3]

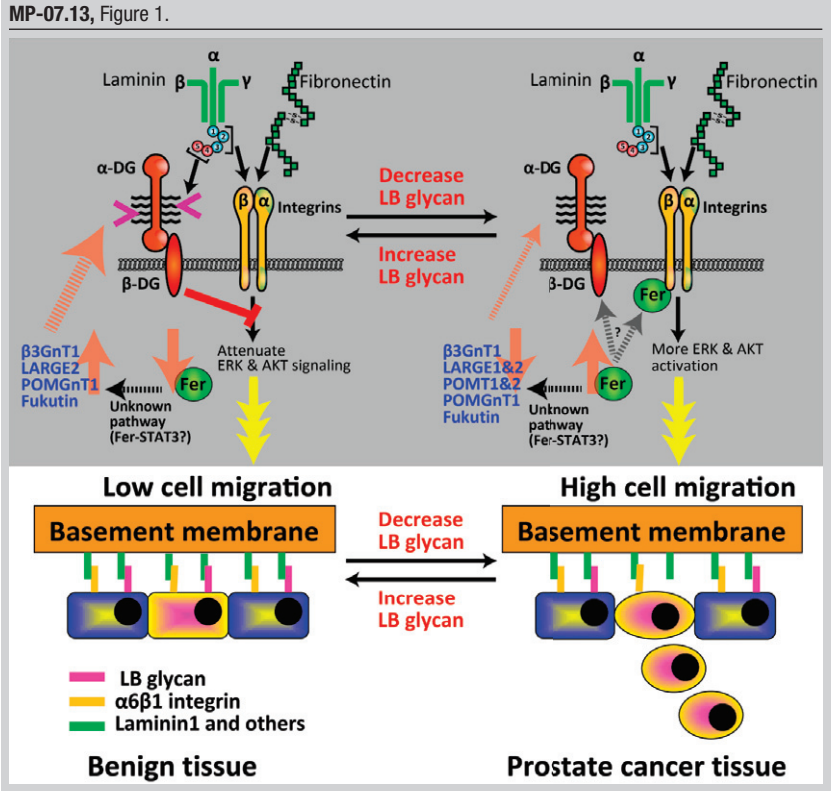
[1]Dept. of Advanced Transplantation and Regenerative Med., Hirosaki University, Hirosaki, Japan; [2]Dept. of Urology, Graduate School of Medicine, Hirosaki University, Hirosaki, Japan; [3]Glycobiology Unit, Tumor Microenvironment, Sanford-Burnham Medical Research Institute, La Jolla, USA

Introduction and Objective: Laminin-binding (LB) glycans of α-dystroglycan (α-DG), which is expressed at the epithelial cell-basement membrane (BM) interface, play an essential role in epithelium development and tissue organization. LB glycans on α-DG expressed on cancer cells suppress tumor progression by attenuating tumor cell migration signal from the BM (1,2). However, mechanisms controlling LB glycan expression are not known yet. Here, we performed siRNA library screening and identified Fer tyrosine kinase, a non-receptor type tyrosine kinase, as a key regulator of LB glycan expression on prostate cancer cells.

1. Bao X *et al*. *PNAS*; 106:12109-12114 (2009).
2. Shimojo H *et al*. *The Prostate*; 71:1151-1157(2011).

Materials and Methods: Human Kinase siRNAs targeting 704 genes (Ambion) were prepared at the Functional Genomics Facility of Sanford-Burnham Medical Research Institute. Three different siRNAs per gene (a total 2,112 siRNAs) were analyzed in duplicate to avoid effects of non-specific silencing. DU145 prostate cancer cells, which express LB glycans detectable by the IIH6 monoclonal antibody, were used for screening. Next, to investigate function of Fer tyrosine kinase on regulation of LB glycans expression, we performed RT-PCR, FACS, immunoblot analyses, migration and invasion assay by using Fer kinase downregulated or overexpressed DU145 and PC3 prostate cancer cell lines.

MP-07.13, Figure 1.



Results: Fer overexpression decreased LB glycan expression, while siRNA-mediated knockdown of Fer kinase increased glycan expression on prostate cancer cell lines. Fer expressed more aggressive prostate cancer cell line and human prostate cancer tissues. Loss of Fer kinase function via siRNA increased transcription levels of glycosyltransferases, including POMT1, β3GnT1, and LARGE, which are required to synthesize LB glycans. Consistently, inhibition of Fer expression increases LB glycan thereby decreases cell migration and invasion in the presence of laminin fragment. However, expression or downregulation of Fes, which is highly similar to Fer, does not affect the expression of the LB glycans.

Conclusions: These results indicate that the Fer pathway negatively controls expression of genes required to synthesize LB glycans, thus impairing BM attachment and increasing tumor cell motility. The results also suggest that Fer kinase is an excellent target for downregulation of tumor progression.

MP-07.14

^{11}C-Acetate PET/CT Imaging of Prostate Cancer Lymph Node Metastases and Correlation with Lymphadenectomy and Histopathology Findings

Hellström M[1], Schumacher M[1,2], Radecka E[3], Sundin A[3], Jakobsson H[3]

[1]Dept. of Urology, Karolinska Hospital, Stockholm, Sweden; [2]Dept. of Urology, Hirslanden Klinik, Aarau, Switzerland; [3]Dept. of Radiology, Karolinska Hospital, Stockholm, Sweden

Introduction and Objective: The choice of treatment in patients with prostate cancer is often determined by the existence of tumor spread to regional lymph nodes. In this study, we evaluated PET/CT with ^{11}C-acetate to detect regional lymph node metastases with strict correlation to surgical and histopathological results.

Materials and Methods: The study comprised of 19 patients. In 8 cases lymph node sites were explored in connection with retropubic prostatectomy. In one subject lymphadenectomy was carried out before radiation therapy. Ten cases which previously underwent prostatectomy had biochemical recurrence and positive lymph nodes on ^{11}C-Acetate PET/CT Imaging. According to our study protocol these patients underwent subsequent lymphadenectomy within two months. Mean pre-operative PSA was 25.1 (range 0.1-130 ng/ml). All 19 patients had undergone ^{11}C-acetate-PET/CT imaging. 14 cases indicated lymph node metastases

and were therefore planned for surgery. Five PET/CT negative patients were also included for surgery, 3 because of high PSA (16, 50 and 130ng/ml), one had a poorly differentiated tumor (Gleason 9) and one had rapid tumor increase on repeated biopsies. A postoperative PET/CT was performed 3 months after surgery in all patients.
Results: Ten patients were positive for lymph node metastases on histopathology. For each patient a mean of 25 (range 8-50) lymph nodes were obtained at surgery. A total of 478 lymph-nodes were examined by the pathologists and 44 of these were positive for malignancy. Good correlation between ^{11}C-acetate-PET/CT report and histopathology was seen in 15 cases resulting in 90% sensitivity and 67% specificity. In postoperative controls progression was suspected in 4 cases on ^{11}C-acetate-PET/CT imaging.
Conclusions: ^{11}C-acetate PET/CT imaging in this limited material had a high sensitivity but lower specificity. Further clinical research on the use of 11C-acetate-PET/CT with optimizing scanning time and equipment may allow further improvement.

MP-07.15
Correlation between Gleason Score of Needle Biopsy and Radical Prostatectomy Specimen: Clinical Implication and Prognostic Impact
Janane A, Ould Ismail T, Hamdoune A, Ghadouane M, Ameur A, Abbar M
Dept. of Urology, Military Hospital for Instruction, Rabat, Morroco

Introduction and Objective: Discrepancies between the Gleason score (GS) on needle biopsy (NB) and the GS of the radical prostatectomy (RP) specimen is a common finding. The aim of our analysis was to assess the prognostic significance and the clinical implication of this discordance, with respect of outcomes following RP.
Materials and Methods: Between 2000 and 2009, 265 men have undergone RP. Our patients were categorized as having NB=RP (67.7%), NB<RP (28.1%), NB>RP (4.2%), and stratified for statistical analyses into RP GS sub groups. The Kaplan-Meier method was used to analyze differences in biochemical recurrence-free survival (BRFS), and multivariate Cox analyses were used to calculate the independent relative risk of local and systemic progression correlated to GS discordance.
Results: Across multiple prostatectomy specimen GS strata (3+4, 7, 8-10), patients with a lower needle biopsy GS significantly better BRFS than patients with equal NB and RP GS ($p<0.05$). NB<RP Gleason score was independently associated with better BRFS ($p=0.002$); within and across RP GS strata. Similarly, patients with NB>RP Gleason score had poorer BRFS than patients with NB=RP GS across multiple RP GS strata (<3+3, 3+3, 3+4, >3+4); all $p<0.05$). NB>RP GS was independently associated with worse BRFS rate.
Conclusions: Our analysis suggest that the GS of the GS of the NB adds additional prognostic value to the RP GS in a rational approach that could be applicable, in our daily practice, to strategies of risk stratification and patient counseling after radical prostatectomy.

MP-07.16
Perineural Invasion and Lethal Prostate Cancer
Zareba P[1], Fiorentino M[2,3], Flavin R[2], Martin N[4,5], Andersson S[6], Andrén O[6], Fall K[6,7], Rider J[2,6,8], Mucci L[4,8]
[1]Div. of Urology, McMaster University, Hamilton, Canada; [2]Dept. of Pathology, Dana-Farber Cancer Institute, Boston, USA; [3]Pathology Unit, Addarii Institute, S. Orsola-Malpighi Hospital, Bologna, Italy; [4]Dept. of Epidemiology, Harvard School of Public Health, Boston, USA; [5]Dept. of Radiation Oncology, Brigham and Women's Hospital, Boston, USA; [6]Dept. of Urology, Örebro University Hospital, Örebro, Sweden; [7]Dept. of Medical Epidemiology, Karolinska Institutet, Stockholm, Sweden; [8]Channing Laboratory, Brigham and Women's Hospital, Boston, USA

Introduction and Objective: Perineural invasion (PNI) is believed to be a common route of metastasis in patients with prostate cancer, with recent studies also suggesting that interaction with nerves bestows cancer cells with a survival advantage. However, the prognostic significance of PNI in prostate cancer has not been definitively established.
Materials and Methods: The relationship between PNI and lethal prostate cancer was studied in two population-based cohorts: a Swedish cohort of 615 men diagnosed incidentally on transurethral resection (TURP) and treated with watchful waiting, and a U.S. cohort of 689 men participating in the Health Professionals Follow-Up Study (HPFS) who were treated with radical prostatectomy. All TURP and prostatectomy specimens underwent standardized histopathologic review by dedicated study pathologists for Gleason grade and the presence of PNI. Patients were followed prospectively from the date of diagnosis until the development of metastases or death through 2011, with the cause of death reviewed by endpoint committees. Logistic and proportional hazards regression were used to model the outcome of lethal prostate cancer as a function of PNI, adjusting for age at diagnosis, Gleason grade, tumor volume (Swedish cohort) and tumor stage (HPFS).
Results: The prevalence of PNI was 7% and 38% in the Swedish and HPFS cohorts, respectively. There was a strong correlation between presence of PNI and higher Gleason grade in both cohorts. In the Swedish cohort, PNI was found to be strongly associated with lethal prostate cancer on univariate analysis (crude OR 7.36, 95% CI = 3.46–15.66, $p < 0.0001$), but the association was not significant after adjusting for age at diagnosis, Gleason grade, and tumor volume (OR 2.17, 95% CI = 0.88–5.35, $p = 0.09$). In the HPFS, PNI was found to predict lethal prostate cancer independent of age, Gleason grade, and tumor stage (HR 1.70, 95% CI 1.05–2.76, $p = 0.03$).
Conclusions: Ours is the first study to show the presence of PNI in the surgical specimen to be an independent predictor of prostate cancer-specific mortality in men undergoing radical prostatectomy. Further research is necessary to elucidate the biological mechanisms underlying PNI, and to define the appropriate role of PNI in guiding adjuvant treatment after prostatectomy.

MP-07.17
The Value of Post-Biopsy PSA Ratio as a Predictive Factor of High Risk Prostate Cancer
Kim H, Kim B, Kwon S, Lee J, **Choi J**, Choi S, Kwon T, Chung S, Kim B, Park Y
Dept. of Urology, School of Medicine, Kyungpook National University, Daegu, South Korea

Introduction and Objective: We previously reported that the post-biopsy prostate PSA increase is significantly greater in patients with benign prostatic hyperplasia than in those with prostate cancer. We investigated whether the post-biopsy PSA change may predict the severity of prostate cancer.
Materials and Methods: From January 2007 to July 2010, 294 patients with an initial diagnosis of prostate cancer were included. All patients underwent 10-core prostate needle biopsy, and serum PSA level was checked before (pre-PSA) and

60 minutes after biopsy (post-PSA). The PSA ratio defined as post-PSA/pre-PSA. We determined cut-off value of PSA ratio according to ROC curve and divided into two groups according to PSA ratio. Clinicopathologic outcomes were retrospectively analyzed between high PSA ratio and low PSA ratio groups by multivariate logistic regression analysis.
Results: The mean PSA ratio was 3.68, and cut-off value was 1.9 according to ROC curve (AUC 0.758, Sensitivity 80.4%, specificity 64.1%). Baseline PSA, Gleason score and T stage were significantly higher in low PSA ratio group (Table 1).
Conclusions: Our results suggest that low post-biopsy PSA ratio is important predictive factor of high risk prostate cancer and worse prognosis. This parameter may be valuable in the pretreatment risk assessment of prostate cancer.

MP-07.18
The Validity of CAPRA Score in Korean Patients
Kim H[1], Seong K[2], Kim S[2], Kim H[2], Park C[2], **Park J**[2]

[1]Konkuk University Chungju Hospital, Chungju, South Korea; [2]Dept. of Urology, Ulsan University, Gang Neung Asan Hospital, Gangneung, South Korea

Introduction and Objective: It is difficult to classify the risk of treatments or procedures for prostate cancer patients with only the stage of prostate cancer. The validity of University of California San Francisco Cancer of the Prostate Risk Assessment score (UCSF CAPRA score, 2005) was evaluated when it was applied to the Korean prostate cancer patients.
Materials and Methods: The subjects were 203 patients who had radical prostatectomy due to prostate cancer between February 1997 and April 2010 and they were observed longer than 12 months. CAPRA score was calculated in 114 patients among them possessing information about the age, clinical stage, preoperative PSA, biopsy Gleason score, the positive rate of the biopsy (table 1). Biochemical recurrence was referred to the PSA value being greater than 0.2 repetitively with least 4 weeks intervals. Cox proportional hazard model was used to test the variables of CAPRA score for the biochemical recurrence and Kaplan-Meier analysis were used to analyze the 5 year disease-free survival rate using CAPRA score.
Results: Table 2 shows the test result of the variables of CAPRA score for the biochemical recurrence. Table 3 shows the 5-year disease-free survival rate when CAPRA score was classified into 7 groups. The 5-year disease-free survival rates were significantly reduced in the CAPRA score 4 point group and in the CAPRA score 7-10 point groups comparing to the CAPRA 0-1 groups. However, the significance did not occur in the CAPRA score 2, 3, 5 and 6 groups. CAPRA score was able to predict biochemical recurrence significantly in this study. (The concordance index of this study was 0.728, its CaSURE dataset was 0.66, and its Northwestern university dataset was 0.764)
Conclusions: CAPRA score was proven to be a significant tool to predict disease-free survival rate in the limited cases for the Korean prostate cancer in this study. However, further studies with bigger samples are required to generalize the validity of CAPRA score for the Korean prostate cancer patients.

MP-07.17, Table 1. Clinical and oncologic characteristics between high PSA ratio and low PSA ratio groups

	PSA ratio<1.9 (n=150)	PSA ratio≧1.9 (n=144)	p-value
Mean age (years)	69.54±7.17	69.1±6.21	0.578
Mean BMI (kg/m2)	23.38±2.45	23.51±2.28	0.661
Mean initial PSA (ng/ml)	50.7±38.18	14.33±8.44	<0.01
Mean prostate size (gm)	33.70±18.73	35.95±15.09	0.257
Prostate biopsy			
Gleason score	8 (6-10)	7 (6-9)	<0.001
Positive core	5.9 (1-10)	3.71 (1-10)	<0.001
Clinical stage			
≦T2	69	122	
≧T3	81	22	<0.001
LN involvement	7	2	0.097
Distant metastasis	21	7	0.006
Pathologic specimen	n=61	n=82	
Gleason score	7.52 (6-10)	7.07 (6-9)	0.004
T2	12	49	
≧T3	49	33	<0.001
Positive surgical margin	38	28	0.001
LN involvement	1	0	0.427
Follow-up period (mo)	21.46±8.15	20.05±7.33	0.149
PSA nadir			
Mean value (ng/ml)	0.12±0.05	0.10±0.07	0.768
Time to nadir (mo)	7.66±5.15	6.02±4.17	0.007
BCR after RP			
BCR (+)	6 (9.83%)	5 (6.09%)	0.302
Time to BCR (mo)	12±4.38	18±3.74	0.037

BMI: body mass index; PSA: prostate specific antigen; BCR: biochemical recurrence, RP: radical prostatectomy

MP-07.18, Table 1. CAPRA score calculation

	Condition	Score
Age	Younger than 50	0
Older than 50	1	
Clinical stage	T1 & T2	0
	T3a	1
Preoperative PSA	2.1-6	0
	6.1-10	1
	10.1-20	2
	20.1-30	3
	>30	4
Biopsy Gleason score	1-3/1-3	0
	1-3/4-5	1
	4-5/1-5	3
Positive biopsy core	Less than 34%	0
	More than 34%	1

MP-07.18, Table 2. Cox proportional hazard model of biochemical recurrence using CAPRA score

	Hazard ratio	95%confidence interval	Significance
Age 0.262		0.030-2.310	0.228
Clinical stage		All the patients were T1 & T2	
Preoperative PSA	1.122	0.863-1.460	0.390
Gleason score	1.893	1.316-2.723	0.001
Positive biopsy core	0.599	0.253-1.418	0.244

MP-07.18, Table 3. Kaplan-Meier analysis of 5 year disease-free survival rate using CAPRA score

CAPRA-S score	5 year disease-free survival rate (%)	significance
0-1	100	
2	80	0.386
3	70	0.301
4	65	0.037
5	80	0.120
6	62	0.074
7-10	30	0.003

MP-07.19
Multiparametric MRI and Prostate Cancer Staging
Robinson S, Motiwala H, Karim O, Laniado M
Wexham Park Hospital, Slough, UK

Introduction and Objective: Does multiparametric (MPI) MRI offer more than conventional MRI?
Clinical staging is fraught with problems with DRE, TRUS, biopsy characteristics all having limitations. MPI may offer advantages to the clinician.
Materials and Methods: This is a partly retrospective and prospective study of 354 patients undergoing radical prostatectomy. Their preoperative MRI was compared to final pathological staging. The T staging was divided into T2a, T2b, T2c, T3a, T3b where the radiologist had committed to this.
There were 298 who had conventional MRI and 56 had pre biopsy MPI.
Results:
Conventional MRI.
Correct = 22%
Overstaged = 20%
Understaged = 58%
Sensitivity = 28%
PPV =52%
Weighted kappa = 0.15 poor
Multiparametric MRI.
Correct = 30%
Overstaged = 9%
Understaged = 61%
Sensitivity = 33%
PPV = 77%
Weighted kappa = 0.175 poor
The stages were then allocated to either T2 or T3 disease.
Conventional MRI.
Sensitivity = 78%
PPV = 86%
Weighted kappa = 0.272 fair
Multiparametric MRI.
Sensitivity = 70%
PPV = 93%
Weighted kappa = 0.237 fair
Discussion: Distinction between intracapsular (T1-2) and extracapsular disease has the most profound influence on treatment decisions. DRE often underestimates stage. More extensive examinations for T staging are recommended when curative treatment is an option. There is no direct relation between PSA and clinical/pathological stage. PSA, biopsy score and clinical stage combined fares better. TRUS is limited and no better than DRE; 3D mapping is more accurate then 12 core biopsy. CT and MRI are insufficient to be mandatory in assessment of local invasion. Endorectal coil MRI offers advantaged over external coil MRI. The results influence whether to spare nerves at radical surgery. MPI for T substaging is better than conventional MRI but its kappa statistic is still poor. When the results are all grouped into either intra or extracapsular extension, the kappa weighting for both improves to a "fair" rating yet MPI performs slightly worse than conventional MRI.
Conclusions: Despite advances in computer imaging technology, more data needs to be collected for MPI as its role in staging remains elusive.

MP-07.20
Analysis of Stage and Prognostic Grouping for Prostate Cancer in TNM Classification Seventh Edition: Results from the J-Cap Database
Kimura T[1], Onozawa M[1], Miyazaki J[1], Nishiyama H[1], Hinotsu S[2], Akaza H[3]
[1]Dept. of Urology, University of Tsukuba, Tsukuba, Japan; [2]Dept. of Pharmacoepidemiology, University of Kyoto, Kyoto, Japan; [3]Reserch Center For Advanced Science and Technology, University of Tokyo, Tokyo, Japan

Introduction and Objective: The TNM classification of Malignant Tumors (7th-edition) introduced prognostic grouping for prostate cancer. We evaluated this grouping system using a Japanese prostate cancer database.
Materials and Methods: There were 15,259 patients who initially received primary androgen deprivation therapy (PADT) and for whom the Japan Study Group of Prostate Cancer (J-CaP) had detailed information on survival data, TNM stage, Gleason score (GS), and prostate-specific antigen (PSA). Overall survival (OS) five years after PADT was estimated by the Kaplan-Meier method according to prognostic grouping and subgroups stratified by TNM, GS, and PSA. A modified prognostic grouping was developed through these analyses. The concordance-index (c-index) in each grouping was calculated to evaluate the suitability.
Results: The 15,259 patients were stratified into Stage I (20.0%), II (27.8%), III (19.1%) and IV (33.1%) and into Group I (7.6%), II A (14.7%), II B (24.2%), III (19.1%) and IV (33.1%) by prognostic grouping (7th-ed). Overall survival rates at five years were 88.7% (I), 86.3% (II), 80.6% (III) and 57.1% (IV) by stage grouping, and 90.1% (I), 88.4% (IIA), 85.6% (IIB), 80.6 % (III) and 57.1 % (IV) by prognostic grouping. Analysis of subgroups stratified by TNM, GS, and PSA revealed that the 5yOS of the group with T2c, PSA<10, and GS≦6, was 92%, the same as that of Group IIA. We subdivided group IV into IVA and IVB, with IVB being M1, PSA>100 or GS≧8, and the remainder being IVA. The 5yOSs of the modified prognostic groupings were 90.0% (I), 88.3% (IIA), 84.8% (IIB), 80.6 % (III), 72.9% (IVA), and 49.5% (IVB). The c-indexes of the modified prognostic groupings were 0.685 (OS), 0.827 (CSS) and 0.697 (PFS). The c-indexes of the stage and prognostic groupings were 0.668, 0.670 (OS), 0.798, 0.801 (CSS), 0.680, 0.683 (PFS). The c-indexes of the modified prognostic groupings were higher than those of the unmodified prognostic groupings (7th-ed).
Conclusions: A modified grouping system incorporating PSA and GS was more strongly related with prognosis in prostate cancer patients than the unmodified 7th-edition system. Our system might be useful for analysis of prostate cancer patients treated by PADT.

Moderated Poster Session 8
Renal Cell Carcinoma and Urothelial Cancer
Monday, October 1
15:15-16:45

MP-08.01

External Validation of a Preoperative Prognostic Nomogram for Renal Cell Carcinoma in Two Patient Populations

Namekawa T[1], Utsumi T[1], Ueda T[2], Fukasawa S[2], Komaru A[2], Suyama T[1], Imamoto T[1], Nihei N[1], Suzuki H[3], Ichikawa T[1]

[1]Dept. of Urology, Chiba University Graduate School of Medicine, Chiba, Japan; [2]Div. of Urology, Chiba Cancer Center, Chiba, Japan; [3]Dept. of Urology, Toho University Sakura Medical Center, Sakura, Japan

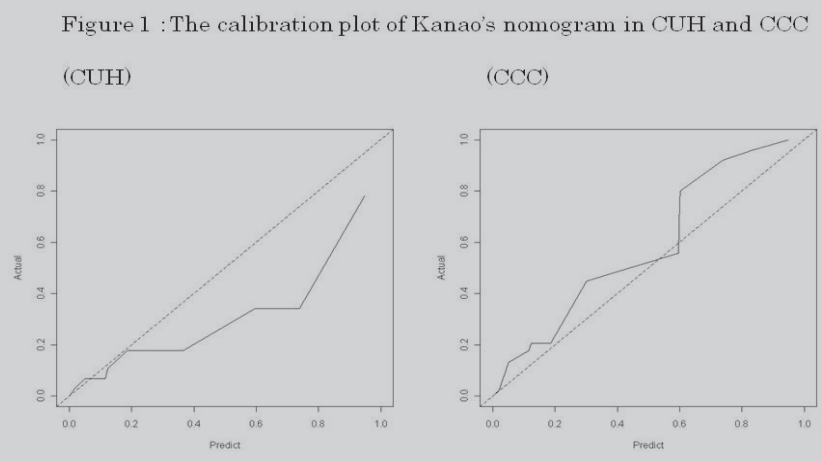
Introduction and Objective: The aim of this study was to establish the discriminating accuracy of Kanao's preoperative nomogram for renal cell carcinoma in predicting cause-specific survival among representative patients who underwent nephrectomy.

Materials and Methods: Patients originated from two centers: Chiba University Hospital (CUH; n=151) and Chiba Cancer Center (CCC; n=91), Chiba, Japan. The following data were collected: age, gender, clinical presentation (incidental, local, and systemic), surgical technique, 2002 TNM classification, clinical tumor size as the greatest diameter in centimeters, disease recurrence, and progression. We used Kanao's nomogram to calculate the probability of cause-specific survival after 5 years of follow-up in this study, although the nomogram was originally developed and validated to predict 1-, 3-, and 5- year cause-specific survival.

Results: The c-index values describing the predictive accuracy of the nomogram were 0.692 in CUH and 0.834 in CCC. The c-index value of Kanao's nomogram in CCC was much higher than that in CHU. Differences were not statistically significant (P=0.191). Figure 1 shows the calibration plot of Kanao's nomogram in CUH and CCC. As a whole, the calibration plot of Kanao's nomogram in CUH gave an overestimation of the predicted probability of cause-specific survival after 5 years as compared with the actual probability. The calibration plot in CCC demonstrated that the predicted probability of cause-specific survival after 5 years is consistent with the actual probability.

Conclusions: Results of external validation were different at each cohort. We constructed calibration plots of Kanao's nomogram and confirmed the tendency at each institution. Inconsistency of results among two centers makes it difficult to reach a valid conclusion. Therefore, the predictive accuracy of Kanao's nomogram was not settled. Clinicians need to confirm the predictive accuracy of Kanao's nomogram and construct calibration plots when applying this nomogram to different patient populations.

MP-08.01, Figure 1.



MP-08.02

Efficacy of ^{18}F-FDG and ^{11}C-Acetate PET in Characterizing Renal Cell Carcinoma: A Preliminary Experience

Takahara N[1], Oyama N[1], Hasegawa Y[1], Miwa Y[1], Akino H[1], Okazawa H[2], Yokoyama O[1]

[1]Dept. of Urology, University of Fukui, Fukui, Japan; [2]Biomedical Imaging Research Center, University of Fukui, Fukui, Japan

Introduction and Objective: We assessed the usefulness of positron emission tomography (PET) with ^{11}C-acetate (AC) and ^{18}F-fluorodeoxyglucose (FDG) in the evaluation of solid renal tumor.

Materials and Methods: A total of 23 patients (mean age 64.6 ± 11.6) with renal tumors were enrolled in this study. All patients underwent both AC PET scan and FDG PET scan, followed by nephrectomy or partial nephrectomy. Regional values of tracer uptake were evaluated by using standardized uptake value (SUV), a normalized value corrected by using injection dose and body weight.

Results: In total 24 renal tumors were evaluated. Twenty-two of 24 renal tumors were diagnosed as renal cell carcinoma (RCC) (clear cell carcinoma; 17, chromopobe cell carcinoma; 2, papillary cell carcinoma; 1, cystic renal cell carcinoma; 1 granular cell carcinoma; 1). Two tumors were diagnosed as benign tumor (metanephric adenoma; 1, oncocytoma; 1). AC PET findings were positive in 19 of these 22 RCCs (86%), while FDG PET was positive in only 5 (23%). Patients with renal cell carcinoma showed significantly greater mean SUV for AC (3.6 ± 1.5) than for FDG (2.3 ± 0.3) (P < 0.001). There was a positive correlation observed between FDG uptake and RCC tumor size. Both AC and FDG PET findings were negative for a case of metanephric adenoma. One case of oncocytoma showed positive AC PET and negative FDG PET findings.

Conclusions: AC PET demonstrated a pronounced increase in tracer uptake in RCC and higher sensitivity than FDG PET. These preliminary data show that ^{11}C-acetate is a possible PET tracer for the characterization of renal tumor.

MP-08.03

Is Routine Computed Tomography of Upper Urinary Tract Justified Following Bladder Cancer Surgery in the Era of Powerful Ultrasonography?

Topuzovic C, Toma P, Cane T

Clinic of Urology, Clinical Center of Serbia, Belgrade, Serbia

Introduction and Objective: The purpose of the present study was to evaluate the justification of routine use computed tomography (CT) for exploration of upper urinary tract during follow-up after bladder cancer (BC) surgery and validity of the ultrasonography (US) using in this respect.

Materials and Methods: After institutional review board approval was obtained, we identified 36 upper tract urothelial carcinomas (UTUC) surgically treated at our institution from 2006 to

2011. BC surgery had undergone in all patients previously. A total of 36 patients treated for UTUC after BC surgery were evaluated including 23 men (64%) and 13 women (36%). The median age at operation was 62 years (range 40-82). The mean interval between UTUC surgery and previous BC surgery was 3.8 years (range 1 to 7). No patients had an UTUC before operation for BC. Abdominal US and CT urography were performed in all patients preoperatively.
Results: Pyelocaliceal tumors were founded in 20 (56%) and ureteral in 16 (44%) patients. Several degrees of ureteral and/or pyelocaliceal dilatation were identified with CT urography and US in 21 (58%) patients. Pyelocaliceal and ureteral dilatation had 14 (88%) patients with ureteral tumors. US performed correct diagnosis of UTUC in 28 (78%) patients and all other patients had ultrasonographically suspicion UTUC. Clear diagnosis of UTUC established with CT in 33 (92%) patients and in the rest with CT suspicion tumors, ureteropyeloscopy was used to support diagnosis.
Conclusions: Our study has suggested that US might be comparable to CT for routine use in detection of UTUC during follow-up of patients underwent BC surgery. CT scan could be helpful in any doubtful case when US findings for UTUC are not clear. Because of high cost, radiation and possible allergic adverse effect, CT have limited access and should be an optimal test and there are no indications for its routine use for imaging of upper urinary tract following BC surgery.

MP-08.04
Prognostic Role of Clinical and Pathological Factors in Patients with Renal Cell Carcinoma
Alekseev B, **Kalpinskiy A**, Nyushko K, Frank G, Andreeva Y, Golovaschenko M, Pryadilova E
Moscow Hertzen Oncology Institute, Moscow, Russia

Introduction and Objective: The aim of this study was to evaluate the prognostic role of pathologic factors in patients with renal cell carcinoma (RCC) without lymph node (LN) or distant metastases and to assess their influence on progression-free (PFS) and overall survival (OS).
Materials and Methods: There were 543 patients with RCC, after radical nephrectomy (RN) in 1992-2009. Lymph node dissection (LND) was performed in 369 (67.9%) patients. No LND – in 174(32.1%) patients. Clinical stage was cT1a in 18.4% patients, cT1b-27.5%, cT2a-20.8%, cT2b-3.9%, cT3a-21.7% and cT3b in 7.7%. The group of 33 (8.9%) patients with LN metastases was excluded from survival analysis. Median of follow up was 52 (1-206) months. Recurrences were verified in 79 (14.5%) patients and 53 (9.8%) patients died due to progression; 14 patients (2.6%) died from other reasons.
Results: Significant correlation observed between presents of clinical symptoms (R=0.21), pT (R=0.24); tumor size (R=0.26); presence of tumor necrosis (R=0.22); vascular invasion (R=0.17); sarcomatoid features (R=0.16); Fuhrman grade (R=0.15) and probability of recurrence ($p<0.001$). In multivariate analysis correlation of recurrence incidence was observed between symptoms, presence of sarcomatoid features and tumor necrosis ($p<0.001$). Log-rank analysis has demonstrated 5-year OS and PFS rates for patients without symptoms: 91.6%, 87.5%; with local symptoms – 88.7%, 78.7%, and with systemic symptoms - 64.3%, 51% ($p<0.001$). Five-year OS and PFS rates for patients with absence of sarcomatoid features were 88.6%; 81.6% and with sarcomatoid features - 67.6%, 35.7% ($p<0.001$). Significant difference in 5-year OS and PFS in subject with presence of tumor necrosis were observed as 78.2% and 69.2%, and in cases of absence of tumor necrosis – 94.3% and 87%, respectively ($p<0.001$). In case of presence of vascular invasion 5-year PFS and OS rates was only 64.5%, 75% and it was 85.1%, 92.2% with no vascular invasion observed ($p<0.001$). pT stage, presence of symptoms, sarcomatoid features, and necrosis are the most important prognostic factors ($p<0.05$), influencing PFS and OS in patients with RCC.
Conclusions: pT stage, presence of clinical symptoms and necrosis are the most important prognostic factors, influencing PFS and OS in patients with RCC.

MP-08.05
Minimal Adverse Impact of the Extent of Lymphadenectomy on Surgical Results of Nephroureterectomy for Urothelial Carcinoma of the Upper Urinary Tract
Kondo T, Hashimoto Y, Kobayashi H, Iizuka J, Ikezawa E, Takagi T, Tanabe K
Dept. of Urology, Tokyo Women's Medical University, Tokyo, Japan

Introduction and Objective: The benefit of lymphadenectomy for urothelial carcinoma of the upper urinary tract (UCUUT) remains unclear. The factors for determining whether lymphadenectomy is indicated for individual patients are not only its advantages but also its disadvantages. In this study, we examined the influence of the extent of lymphadenectomy on the surgical results of nephroureterectomy.
Materials and Methods: Until January 2012, 276 patients with UCUUT underwent nephroureterectomy in our department and are the subjects of this study. Of these, 160 patients underwent lymphadenectomy simultaneously. The regional lymph nodes were determined according to our previous study. Complete lymphadenectomy (CompLND) was designated when all the regional sites were dissected. Incomplete lymphadenectomy (IncompLND) was designated when lymphadenectomy did not include all of the regional sites. All lymphadenectomy was performed by the open procedure.
Results: One hundred and ten patients (40%) underwent CompLND, and 48 patients (17%) IncompLND. No lymphadenectomy (No-LND) was performed in 118 patients (43%). Operating times were not very different between the groups (CompLND; 407 minutes, IncompLND; 403, No-LND; 345, $p=0.50$). Intraoperative bleeding was also similar between the groups (CompLND; 323 ml, IncompLND; 304, No-LND; 290, $p=0.51$). The day of hospital discharge did not differ among the groups either, (CompLND; day 9, IncompLND; 9, No-LND; 10, $p=0.44$). We also compared the incidences of perioperative complications, and found differences here. CompLND showed a significantly higher incidence of perioperative complications than other two groups (CompLND; 15.4%, IncompLND; 0%, No-LND; 7.6%, $p<0.01$). However, the incidence of major complications (Clavien grade 3 or higher) was not significantly different between the groups (CompLND; 1.8%, IncompLND; 0%, No-LND; 0.8% $p=0.45$).
Conclusions: Extended lymphadenectomy may prolong the operating time and increase the risk of perioperative complications, but these influences were minimal. Thus, the indication for performing lymphadenectomy can be primarily determined on the basis of whether the patients benefit from it.

MP-08.06
Trends in Partial Nephrectomy Use in Italy: Data from the Piedmont Region in the Last Decade
Volpe A, De Angelis P, Di Domenico A, Zegna L, Mondino P, De Lorenzis E, Terrone C

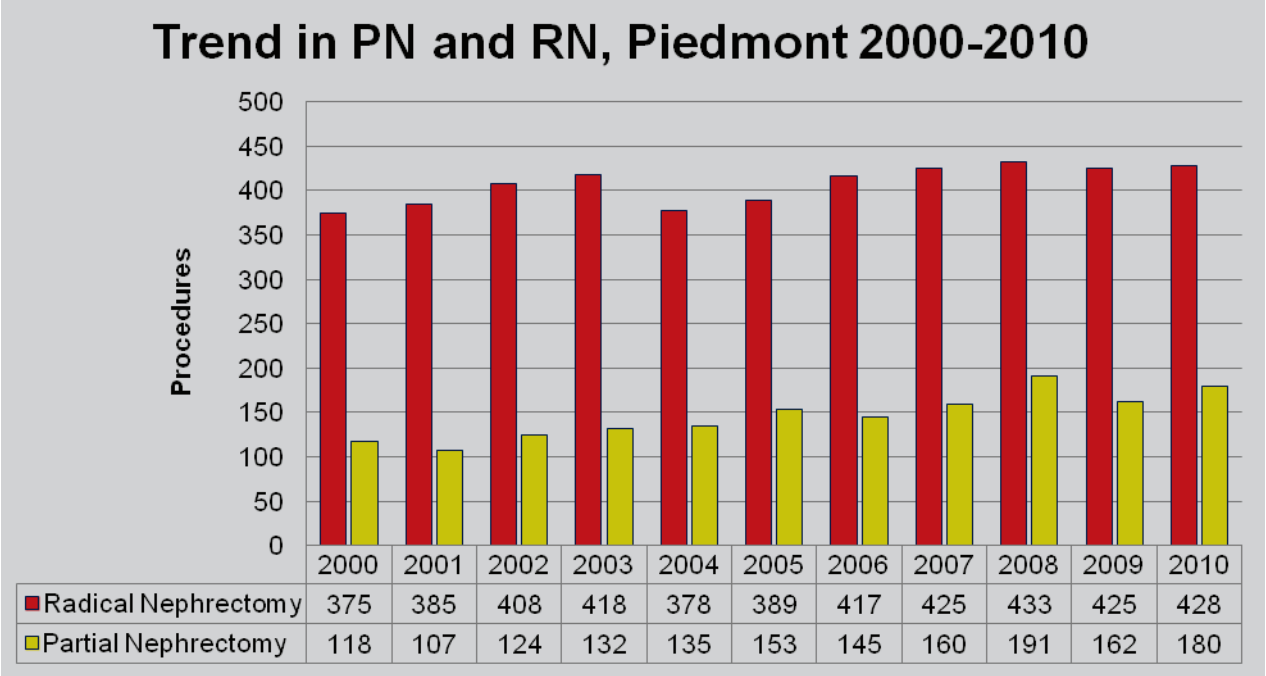
University of Eastern Piedmont, Maggiore Della Carità Hospital, Novara, Italy

Introduction and Objective: Recent studies have shown that partial nephrectomy (PN) has equivalent oncologic outcomes of radical nephrectomy (RN) for localized renal tumors. The most recent international guidelines for renal cell carcinoma (RCC) recommend the use of nephron sparing surgery (NSS) for renal lesions up to 7 cm in size whenever technically feasible. Despite this PN remains underused in North America. The aim of this study was to evaluate trends in PN use during the last decade in a northwestern Italian region.
Materials and Methods: The regional archives of hospital discharge records in Piedmont region from January 2000 to December 2010 were retrospectively analyzed. All procedures recorded with the ICD-9 codes 55.3, 55.4 (PN) and 55.5 (RN) performed for a primary diagnosis of renal tumor (189.0) were included in the analysis (n=6180). The surgeries were performed in 43 different urological institutions, that were stratified according to academic status and hospital nephrectomy volume (high >300, intermediate 100-300, low <100 nephrectomies in the study period). Trends in the use of PN were assessed overall and according to institution type.
Results: The overall number of surgical procedures for renal tumors performed in Piedmont region increased significantly from 2000 to 2010 (+27%). RN is the preferred surgical treatment, but an increasing use of PN was observed over the study period. (Figure) This trend is more significant in centres with high renal surgical volume (+ 19.9%) and in non academic centres (+13.7%).
Conclusions: PN is increasingly performed in the last decade in Piedmont region. The most significant increase in the indications to NSS was observed in institutions with high renal surgical volume. However, PN remains relatively underused and strategies to enhance conservative treatments of renal tumors should be implemented.

MP-08.07
Open Nephron-Sparing Surgery for T1b or Greater Renal Cell Carcinoma
Singh A, Worthington J, Hunt S, Wheelock A, Goudlocke C, Galen N
Dept. of Surgery, University of Tennessee Chattanooga, Chattanooga, USA

Introduction and Objective: Nephron-sparing surgery has become the standard of care for T1a renal cell carcinoma (RCC). Recently most centers have expanded the use of partial nephrectomy for tumor size greater than 4 cm (T1b). Here we present our operative, perioperative, and follow up outcomes for patients undergoing open partial nephrectomy (OPN) for stage T1b or greater renal cell carcinoma.
Materials and Methods: Patients underwent open partial nephrectomy for T1b or greater RCC between 2007 and 2012 by a single surgeon. Demographics, operative, perioperative, complications, and recurrence data were prospectively collected and analyzed.
Results: Thirty-eight patients underwent open partial nephrectomy for T1b RCC. The average age and tumor size for the cohort was 56 (range 35-78) years and 5.7 (range 4.2-11.5) cm. Our mean follow up is 25 months. The average operative time was 157 minutes. Seventeen OPN cases were performed without hilar clamping and 21 cases required cold ischemia time with the average hilar clamping time of 25 minutes. The blood products transfusion rate for the group was 21% (8 of 38). The average length of stay for the two groups was 5 days. There was no significant change in the preoperative GFR, post-operative GFR, and the GFR calculated at three months (p= 0.31). There were a total of 7 complications (18%). Four cases of prolonged urine leak requiring stents, two major wound infections requiring negative pressure wound dressing, and one case of arteriovenous malformation requiring angioembolization. The distribution of pathology among the patients included 32 cases of pT1b, 2 cases of pT2, 3 cases of pT3a, and one case of pT3b renal cell carcinoma. None of the patients had any

MP-08.06, Figure 1.



local recurrences. However, one patient presented with bony metastasis at eighteen month post-surgery.
Conclusions: Open partial nephrectomy is efficacious for stageT1b renal cell carcinoma (tumor size >4.0 cm) with acceptable morbidity and recurrence risk in short term follow-up. Larger studies with longer follow-up are needed to support these early observations.

MP-08.08
Importance of Metastatic Lesions Density for CT Assessment of Efficiency of Target Therapy Renal Cell Cancer
Kogan M, Gusev A, Blinov I, Evseev S
Dept. of Urology, Rostov State Medical University, Rostov-On-Don, Russia

Introduction and Objective: The aim of study was to determine the importance of metastatic RCC lesion density measurement on CT data for assessment and predicting efficiency of VEGF-targeted therapy.
Materials and Methods: CT data of 26 patients with metastatic RCC, treating by VEGF-targeted therapy during the period from 2007 to 2011 year. Seventeen of 26 patients is continuing therapy now. In all cases disseminated metastasis with involvement of 2-4 organs was determined. Assessment of target lesion's change was performed using CT data of 52 target lesions with measurement of change of lesion size (RECIST) and density (Hounsfield units - HU). In 12 lesions out of 52 (23.08%) tendency to size increase after 6-12 month (8.29 month) of therapy was seen (these patients were included in Gr 1), while in remaining 40 cases (76.92%) (Gr 2) stabilization or decrease of lesion size was noted at 12 or more month.
Results: In Gr 1 and 2, there was no significant difference in the mean lesion size (30.62 and 35.84 mm, respectively). The mean lesion density in Gr 1 and 2 was 79.25 HU and 93.37 HU, respectively (p=0.44). Following 4-months therapy, the mean lesion size in Gr 1 and 2 decreased (26.57 and 27.51 mm, respectively), which was considered as positive therapy effect. Although, the mean lesion density in Gr 1 did not change (80.26 HU), correspondent figure in Gr 2 significantly decreased by 55% and was 55.56 HU (p=0.01). Consequently, in Gr 1 gradual increase of lesions size was noted, while in Gr 2 the stabilization of lesion size was seen. Following 12-month therapy, significant difference in the mean size of lesions in Gr 1 and 2 was found (55.83 and 28.28 mm, respectively) (p=0.0057). The difference in lesion density between groups again reached statistical difference after 10-month of treatment (93.05 HU in Gr 1 and 58.31 HU in Gr 2) (p=0.0058).
Conclusions: Determination of lesion's density at 4 month after starting TT can predict progression of target lesion during 1 year of therapy. Change of non-target lesions density can be considered criteria for evaluation of TT efficiency.

MP-08.09
Laparoscopic vs. Open Partial Nephrectomy for T1 Renal Tumors: Evaluation of the Long-Term Oncologic and Functional Outcomes in 340 Patients
Springer C, Hoda R, Fornara P, Greco F
Dept. of Urology, Martin-Luther-University, Halle/Saale, Germany

Introduction and Objective: Whereas open NSS represents the gold standard in the surgical therapy of T1 renal tumors, the refinement of intracorporeal suturing, and the availability of haemosealant substances, the laparoscopic approach has recently gained popularity for NSS. One crucial point in this respect remains warm ischaemia time (WIT), which can potentially affect short- and long-term renal function. The objective of the present study was to investigate if laparoscopic partial nephrectomy (LPN) presents the same surgical and oncological safety of open PN (OPN), without impairing the renal function, in the therapy of T1 renal tumors.
Materials and Methods: This was a retrospective single-centre study including 340 patients who underwent partial nephrectomy and who were matched for age, sex, body mass index, ASA score, tumor side and tumor characteristics providing comparative information on the surgical, oncological, and long-term renal function outcomes of laparoscopic and open NSS. There were 170 patients who underwent a LPN and 170 patients represented an historical control with OPN. Demographic data, peri- and postoperative variables, including operative duration, estimated blood loss, complications, hospital stay, renal function, histological tumor staging and grading, and metastasis rates were collected and analysed.
Results: The median operative duration for LPN and OPN was 145.3 ± 45.4 min and 155.2 ± 35.6 min, respectively ($P = 0.07$). The median warm ischaemia time was 11.7 ± 2.2 min in the LPN and 14.4±1.9 min in the OPN group ($P = 0.03$). During follow-up, the biochemical markers of glomerular filtration were completely normalized, showing the absence of renal injury and there was no statistically significant difference in glomerular filtration rate between the groups, with a median of 79.8 ± 3.0 mL/min/1.72m^2 for the LPN and 80.2± 2.7 mL/min/1.72m^2 for the OPN group at the 5-year follow-up. The 5-year overall survival and cancer-specific survival, calculated using the Kaplan–Meier method, were 94% and 91% in the LPN group, and 92% and 88% in the OPN group.
Conclusions: Laparoscopic and open partial nephrectomies provide similar long-term oncologic outcomes in the therapy of T1 renal cancer. Concerning the renal function, no damage to the kidney could be evidenced after LPN and OPN, with a complete normalization of renal function at the 5-year follow-up in both groups.

MP-08.10
Comparison of Overall Survival Between the Life Expectancy and the Actual Estimated Outcome in Patients Who Underwent Radical Nephrectomy for Renal Cell Carcinoma
Tanaka N[1], Fujimoto K[1], Shinohara M[1], Kiba K[1], Hori S[1], Morisawa Y[1], Okajima E[2], Tsujimoto S[2], Hirao S[2], Hirao Y[1]
[1]Dept. of Urology, Nara Medical University, Kashihara, Japan; [2]Nara Urological Oncology Research Group, Kashihara, Japan

Introduction and Objective: To compare overall survival between the life expectancy and the actual estimated outcome in patients who underwent radical nephrectomy for renal cell carcinoma.
Materials and Methods: Between 1989 and 2008, 1113 consecutive patients were enrolled. The median follow-up period was 38 months (mean: 52.4, range 1-227). The life expectancy was defined by using simple life table for Japanese. The overall survival was estimated by Kaplan-Meier method. The difference was tested by log-rank test.
Results: The 5-year life expectancy of all patients was 99.8%, while the actual 5-year estimated overall survival was 83.2% ($p < 0.001$). In subgroup analyses (clinical stage, gender, incidental cancer, symptomatic cancer, and preoperative positive or negative C-reactive protein), the overall survival by life expectancy was significantly higher than the actual estimated overall survival. By way of exception, female patients with T1N0M0V0, incidental cancer and negative C-reactive

protein showed marginal difference of overall survival between the life expectancy and the actual estimated overall survival ($p = 0.059$).
Conclusions: Overall the actual estimated overall survival for those who underwent radical nephrectomy for renal cell carcinoma was significantly lower than the life expectancy for them. Female patient with low stage, incidental cancer and preoperative negative C-reactive protein can expect a similar life expectancy of generation.

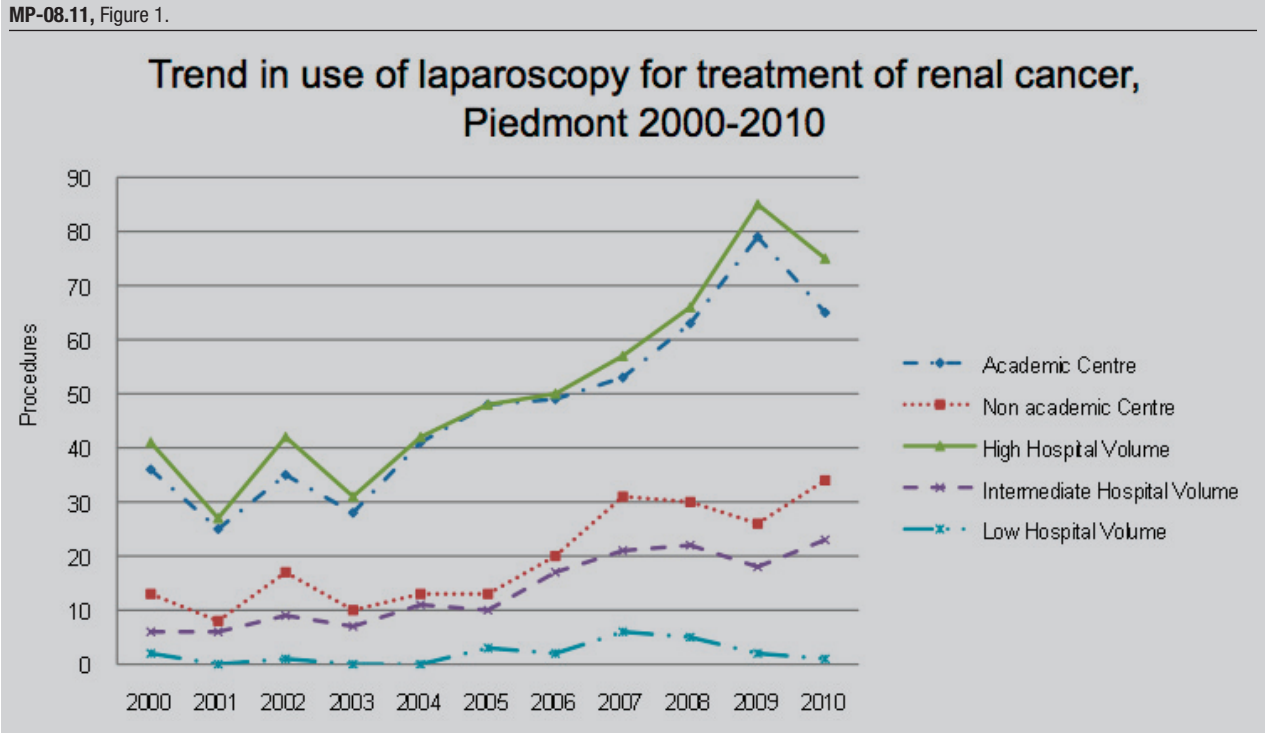
MP-08.11
Trends in the Use of Laparoscopy for Surgical Treatment of Renal Tumors in Italy: Data from the Piedmont Region in the Last Decade
Volpe A, De Angelis P, Mondino P, Di Domenico A, Zegna L, De Lorenzis E, Tarabuzzi R, Terrone C
University of Eastern Piedmont, Maggiore Della Carità Hospital, Novara, Italy

Introduction and Objective: Recent international guidelines for renal cell carcinoma (RCC) recommend the use of laparoscopic partial nephrectomy (LPN) in centres with laparoscopic expertise. When radical nephrectomy is indicated, it should be performed with a laparoscopic approach whenever possible. We evaluated trends in the use of LPN and laparoscopic radical nephrectomy (LRN) during the last decade in a north-western Italian region.
Materials and Methods: The regional archives of hospital discharge records in Piedmont region from 2000 to 2010 were retrospectively analyzed. All procedures recorded with the ICD-9 codes 55.3, 55.4 (PN) and 55.5 (RN) performed for a primary diagnosis of renal tumor (189.0) were included in the analysis (n=6180). Laparoscopic cases were identified by the ICD-9 code 54.21. The 43 institutions where the surgeries were performed were stratified according to academic status and hospital nephrectomy volume (high >300, intermediate 100-300, low <100 nephrectomies in the study period). Trends in the use of LPN and LRN over time were assessed overall and according to institution type.
Results: The overall rate of laparoscopic procedures for renal tumors performed in Piedmont increased from 2000-2 (8.8%) to 2008-10 (16.1%). The rate of LPN and LRN increased from 12.9% to 20.8% and from 7.6% to 14.5%, respectively. Overall, the increased use of laparoscopic procedures was more significant in academic centres (+14.5%) and in institutions with high renal surgical volume (+9.9%) (Figure) and was more evident in the last 5 years.
Conclusions: The use of both LRN and LPN for renal tumors has increased in Piedmont in the last decade. This trend is largely driven by wider indications to laparoscopic procedures in academic and high renal surgical volume institutions, while the overall use of laparoscopy remain lower than expected, suggesting the need of strategies to increase the availability of minimally invasive approaches in our region.

MP-08.12
Surgical and Functional Outcomes of Repeat Partial Nephrectomy on a Solitary Kidney
Yoshida K, Kondo T, Takagi T, Iiduka J, Omae K, Ikezawa E, Nozaki T, Kobayashi H, Tanabe K
Dept. of Urology, Tokyo Women's Medical University, Tokyo, Japan

Introduction and Objective: Local recurrence of renal cancer after partial nephrectomy is 2-3%. When it does recur, radical nephrectomy is performed in almost all cases because difficulties can be encountered with all aspects of reoperative surgery. However, patients with only a solitary kidney would have to go on hemodialysis if they lose that kidney, unless the kidney and kidney function can be preserved by repeat partial nephrectomy. We examined outcomes in patients with repeat partial nephrectomy on a solitary kidney.
Materials and Methods: Until March 2011, 460 patients with renal tumors underwent partial nephrectomy in our department. Of these patients, the seven

MP-08.11, Figure 1.



who underwent repeat partial nephrectomy on a solitary kidney are the subjects of this study.
Results: The study group of five men and two women, with a mean age of 67 years (range 52 to 79) was followed from the first partial nephrectomy to recurrence. It took a mean time of 33 months (range 19 to 149) for the tumors to recur. All of these recurrence tumors had developed from the same excision locality as the previous time. The median tumor diameter was 17 mm (range 14 to 30). Median estimated blood loss was 220 ml (range 40 to 2785) and median operating time was 200 minutes (range 156 to 440). Renal hilar clamping for renal ischemia and surface hypothermia with ice slush during tumor dissections was performed in six patients with a median cold ischemia time of 59 minutes (range 21 to 90). The mean serum creatinin level three months after surgery was 1.48mg/dl (range 1.05 to 2.02). Renal function was preserved in all cases. Postperative complications occurred in two patients, including one urinary tract infection and one acute tubular necrosis. Patients were discharged from hospital after a median postoperative period of seven days (range 5 to 17).
Conclusions: Repeat partial nephrectomy is technically feasible. Performing a repeat partial nephrectomy rather than a radical nephrectomy may have many health benefits for patients with a solitary kidney, because most patients retained sufficient function to avoid hemodialysis. We think that repeat partial nephrectomy is technically challenging but is associated with better functional and oncological outcomes.

MP-08.13
Three-Dimensional Choi Response Criteria in Patients with Advanced Renal Cell Carcinoma Treated with Molecular Targeted Therapies
Kensuke S[1], Obara W[1], Fujioka T[1], Sone M[2], Ehara S[2]
[1]Dept. of Urology, Iwate Medical University School of Medicine, Morioka, Japan; [2]Dept. of Radiology, Iwate Medical University School of Medicine, Morioka, Japan

Introduction and Objective: As molecular targeted therapies can induce tumor necrosis and minimal tumor shrinkage, the response evaluation criteria in solid tumors (RECIST) may not be optimal to evaluate antitumor activity. The utility of Choi criteria has been recently reported in patients with metastatic renal cell carcinoma (RCC). The purpose of this study was to measure the feasibility of 3D-Choi criteria and evaluate impact on survival for patients with advanced RCC using 3D-Choi criteria.
Materials and Methods: We evaluated the contrast CT images at two points, prior to the treatment and at the completion of one course with molecular targeted therapies. RECIST and Choi criteria evaluation using changes in the attenuation and the diameter of tumors was based on the original report. For the measurement of 3D-CT attenuation, we used semi-automated volume-of-interest analysis software.We evaluated Progression Free Survival (PFS) using the Kaplan-Meier method.
Results: A total of 35 patients with advanced RCC were evaluated in this study. Twenty patients were treated with sunitinib and 11 patients with sorafenib and 3 patients with everolimus and 1 patient with temsirolimus. We were able to measure the feasibility of 3D-Choi criteria in all cases. One case in CR, 3 cases in PR, 22 cases in SD and 9 cases in PD were evaluated according to RECIST, whereas one case is CR, 11 cases are PR, 12 cases are SD and 11 cases in PD were evaluated according to 3D Choi criteria. CR and the PR group which we evaluated by 3D Choi criteria reflected longer PFS than RECIST criteria (11.5 month vs 8.6 months, p = 0.038).
Conclusions: The 3D Choi evaluation may predict the prognosis of patients with the targeted treatment earlier. 3D-CT would provide helpful information for clinical decision-making.

MP-08.14
Risk Factors for Sorafenib-Induced Erythema Multiforme in Japanese Patients with Advanced Renal Cell Carcinoma
Tsuchiya N[1], Narita S[1], Inoue T[1], Numakura K[1], Horikawa Y[1], Satoh S[1], Fujishima N[2], Hatakeyama S[3], Ohyama C[3], Habuchi T[1]
[1]Dept. of Urology, Akita University Graduate School of Medicine, Akita, Japan; [2]Dept. of Urology, Hirosaki University Graduate School of Medicine, Hirosaki, Japan; [3]Div. of Transfusion Medicine, Akita University Hospital, Akita, Japan

Introduction and Objective: It is reported that the incidence of erythema multiforme (EM) in patients with renal cell carcinoma (RCC) treated with sorafenib is rare but treatment limiting adverse event. In this retrospective study, clinical factors, drug-related genetic, and HLA type were assessed in RCC patients to determine the association with sorafenib-induced EM.
Materials and Methods: A total of 55 consecutive RCC patients treated with sorafenib were enrolled in this study. Of the patients, 33 patients were subjected to HLA typing and polymorphism analyses of *CYP3A5* and *ABCB1*.
Results: EM developed 12 of 55 patients (21.8%) and the median time to occurrence of EM was 10 days with a range of 7 to 17 days after sorafenib administration. All the patients had complete resolution of the erythema after discontinuation of sorafenib. Two patients who were rechallenged with sorafenib 200 mg bid have not experienced recurrent EM. A higher incidence was observed in female than male patients (40.0% vs. 15.0%, P=0.046). Initial dose (ID), ID per body weight (BW), and ID per body surface area (BSA) in EM (+) patients were significantly higher than those in EM (-) patients (733 vs 577 mg/day, P=0.032, 13.4 vs 10.2 mg/day/kg, P=0.012, and 483 vs 373 mg/day/m^2, P=0.007, respectively). With regard to HLA types in HLA –A, B, and DR loci, the incidence of EM was significantly higher in patients with HLA-A*24 than those without HLA-A*24 (7/19 [36.8%] vs 1/14 [7.1%], P=0.046). The *CYP3A5* and *ABCB1* polymorphisms

MP-08.14, Table 1. Association of sorafenib-induced erythema multiforme with patient demographics, initial sorafenib dose, and HLA-A*24

Variables		EM (+)	EM (-)	P
Sex	Male	6 (50)	34 (79)	
	Female	6 (50)	9 (21)	0.046
Initial dose (mg/day)	< 400	2 (17)	21 (49)	
	800	10 (83)	22 (51)	0.046
Initial dose (mg/day)		733 ± 156	577 ± 232	0.032
Initial dose per BW (mg/day/kg)		13.4 ± 3.3	10.2 ± 4.3	0.012
Initial dose per BSA (mg/day/ m2)		483 ± 105	373 ± 141	0.007
HLA-A*24	+	7 (37)	12 (63)	
	-	1 (7)	13 (93)	0.046

EM; erythema multiforme, BW; body weight, BSA; body surface area

were not associated with EM.
Conclusions: In Japanese RCC patients, the higher frequency of sorafenib-induced EM was observed in females, patients administered higher initial dose of sorafenib per BW or BSA, and patients with HLA-A*24. A reduction of initial sorafenib dose may be recommended for patients with lower BW/ BSA, or HLA-A*24 to prevent EM.

MP-08.15
C-Reactive Protein as a Prognostic Biomarker for Advanced Renal Cell Carcinoma Treated with Sunitinib
Wakatabe Y, Fujita T, Iwamura M, Maeyama R, Nishi M, Kurosaka S, Matsumoto K, Yoshida K, Baba S
Dept. of Urology, Kitasato University School of Medicine, Sagamihara, Japan

Introduction and Objective: Since the introduction of sunitinib for patients with advanced renal cell carcinoma (RCC), significant objective responses have been reported. However, a prognostic marker is needed for selecting patients who will benefit most from sunitinib. Previous studies have shown that an elevated C-reactive protein (CRP) level predicts poor survival in patients with metastatic RCC treated with immunotherapy. In this study, we focus on non-tumor characteristics, including CRP, that can predict sunitinib effectiveness.
Materials and Methods: Between December 2008 and August 2011, 41 consecutive patients with advanced clear-cell RCC treated with sunitinib were enrolled in this study. Non-tumor variables were selected from pre-treatment characteristics and adverse events that occurred during the study. Logistic regression analysis estimated the relative importance of non-tumor variables, including CRP, and selected adverse events as predictive factors for sunitinib responses.
Results: Overall, 11 patients (26.8%) demonstrated a partial response and 10 patients (24.4%) had stable disease. On univariate analyses, Memorial Sloan-Kettering Cancer Center non-poor risk, normal CRP, hand-foot skin reaction, altered taste, fatigue, and leukopenia were significantly correlated with objective responses ($P = 0.0206$, 0.0011, 0.0069, 0.0064, 0.0238, and 0.0377, respectively). On multivariate analysis, normal CRP was independently associated with objective response ($P = 0.0163$). Based on this result, patients were grouped into two cohorts: those with normal CRP levels (≤ 0.30 mg/dL) and those with elevated CRP levels (> 0.30 mg/dL). Patients with a normal level of CRP had a significantly higher objective response rate (84.6% *vs* 35.7%, $P = 0.0012$) and significantly longer progression-free survival time (median 19.0 *vs* 6.0 months, $P = 0.0361$) than patients with an elevated level of CRP.
Conclusions: CRP is a significant independent prognostic indicator for patients with advanced RCC treated with sunitinib. Pre-treatment CRP level could be a useful biomarker for response to sunitnib treatment. Further study is needed to clarify the prognostic role of CRP with not only sunitinib but also other targeted agents.

MP-08.16
Prognostic Significance of Tumor Extension Into Venous System in Patients Undergoing Surgical Treatment for Renal Cell Carcinoma with Venous Tumor Thrombus
Miyake H, Furukawa J, Muramaki M, Fujisawa M
Div. of Urology, Kobe University Graduate School of Medicine, Kobe, Japan

Introduction and Objective: The incidence of involvement of the renal vein and/or inferior vena cava (IVC) has been reported to be between 4% and 15% in patients with renal cell carcinoma (RCC). The prognosis of patients with RCC involving the venous system is generally poor, and a reliable system for predicting the postoperative prognosis of these patients has not been developed. Considering these findings, we retrospectively reviewed data from patients with RCC involving the venous system who underwent radical nephrectomy and tumor thrombectomy in a single institution in Japan.
Materials and Methods: This study included a total of 135 patients (97 men and 38 women; median age, 59.5 years) with RCC (89 right- and 46 left-sided tumors) involving the venous system who underwent radical nephrectomy and tumor thrombectomy between 1989 and 2009 at a single institution in Japan. These patients were classified based on the maximal level of tumor thrombus extending into the venous system as follows: group 1, renal vein; group 2, infradiaphragmatic; and group 3, supradiaphragmatic.
Results: Of the 135 patients, 65 (48.1%), 49 (36.3%) and 21 (15.6%) were classified into groups 1, 2 and 3, respectively, while 53 (39.3%) and 29 (21.5%) presented distant and lymph node metastases, respectively. The 1, 3 and 5-year cancer-specific survival (CSS) rates were 85.5%, 67.2% and 61.7%, respectively. Among several factors examined, tumor size, tumor grade, perirenal fat invasion, presence of metastasis, but not extent of tumor thrombus, were significantly associated with CSS by univariate analysis. Of these significant factors, only tumor size and presence of metastasis appeared to be independently related to CSS by multivariate analysis. When the patients without metastasis were analyzed separately, CSS in groups 2 and 3 was significantly poorer than that in group 1.
Conclusions: These findings suggest the absence of a significant prognostic impact of the level of tumor thrombus in a whole cohort of RCC patients with venous tumor thrombus; however, it would be warranted to determine whether the level of tumor thrombus has a different effect on their prognosis according to the presence of metastatic diseases.

MP-08.17
Radical Nephrectomy in Patients with Inferior Vena Cava and Renal Vein Involvement: Clinical Outcomes and Assessment of Complications Using a Graded Score
Al-Zahrani A[1,2], Yutkin V[1], Autran A[1], Izawa J[1], Chin J[1], Barroso J[1]
[1]*Div. of Urology, Dept. of Surgery, University of Western Ontario, London, Canada;* [2]*Dept. of Urology, Dammam University, Dammam, Saudi Arabia*

Introduction and Objective: Renal cell carcinoma (RCC) represents 3-4% of all solid cancer and it has special propensity for invasion of the venous system. RCC invades the inferior cava vein (IVC) in 4 to 10% of the patients. The cornerstone of treatment is aggressive surgical management. The reported 5 year and 10 year overall survival rates are 60 % and 20 %, respectively. There are few reports addressing the complication rats after the surgical intervention in this group of patients. The objective of this study is to report the survival and the complication rates of RCC patients with venous involvement. The perioperative complications assessment was based on the Clavien scoring system.
Materials and Methods: This is a retrospective single center review of patients who underwent radical nephrectomy for RCC with venous involvement between 2000 and 2010. The institution ethics committee had approved the study. The complications were assessed using the Clavien scoring system. Mann-Whitney U test and chi-square test were used for continues and categorical variables,

respectively. Survival analyses were calculated with Kaplan-Meier method.
Results: Twenty-three patients had been identified in our records. The median age of these patients was 68 years (±9.72) and the median follow-up was 16.6 months (95% CI: 16.27-39.83). Most of the patients had symptomatic presentation (87%). There were 21 reported complications in 15 patients (65.2%). Most of these complications (80%) were minor (Clavien I-II). There was no intraoperative or postoperative mortality. Nine patients developed metastasis during follow-up (39.1%) and in four of them the metastases were in 2 or more organs. One patient had local recurrence in the renal bed (4.3%). The disease specific survival and overall survival rats are 69.5% and 65.2% respectively.
Conclusions: Most of RCC patients with venous system involvement are symptomatic. Approximately one-fifth of these patients develop major complication (Clavien III-IV) postoperatively with very low mortality rate.

MP-08.18
Assessment of Surgical Decision-Making in cT1 Kidney Tumor Using the Location Index Obtained from Measured Value on 3-Dimensional CT Image
Yamasaki T, Kamba T, Arakaki R, Shibasaki N, Matsui Y, Yoshimura K, Ogawa O
Dept. of Urology, Graduate School of Medicine, Kyoto University, Kyoto, Japan

Introduction and Objective: Assessment of tumor size and location might affect the treatment decisions for kidney tumor. We explored a simple method to quantify the distribution of kidney tumors for standardized reporting and surgical management.
Materials and Methods: The measurement was carried out using 3-dimensional computerized tomography images in 92 consecutive patients with cT1 kidney tumors undergoing radical and partial nephrectomy between January 2008 and December 2011. A center was fixed on a position where renal artery crosses to renal hilus representing as tangent surface of renal parenchyma. Measurements for index are based on three values including a) shortest distance between the center and close tumor edge, b) longest distance between the center and distant tumor edge, and c) longest distance between the center and assumed renal capsule intersecting tumor. Tumor location index was calculated on the equation, a/b x a/c= index score. We assessed the correlation of the index with surgical procedure in comparison with R.E.N.A.L. nephrometry score.
Results: A lower index indicates a tumor that has more complexity for partial nephrectomy. There was significant correlation between the index score and R.E.N.A.L. nephrometry score. ($r = -0.778$, $P < 0.001$) As the index increases, the tumor size becomes smaller and the tumor is located more distant from the center. Radical nephrectomy was performed for tumors with significantly lower index. Partial nephrectomy, especially laparoscopic partial nephrectomy, was performed for higher index tumors. (RNx; n=42: 0.163 ± 0.020, PNx; n=20: 0.399 ± 0.034, LPNx; n=30: 0.520 ± 0.026, Mean ± SEM) Analysis revealed an association of the index score with surgical procedure. ($P < 0.001$)
Conclusions: Current index system may facilitate reporting of quantitative tumor location and provide a simple measure of tumor complexity for improved surgical planning.

MP-08.19
Difference in Adverse Events of mTOR Inhibitors, Everolimus and Temsirolimus, in Metastatic Renal Cell Carcinoma Patients
Nozawa M, Shimizu N, Yamamoto Y, Minami T, Hayashi T, Yoshimura K, Ishii T, Uemura H
Dept. of Urology, Kinki University Faculty of Medicine, Higashi-Osaka, Japan

Introduction and Objective: Everolimus and temsirolimus have proven their efficacy and are used for patients with metastatic renal cell carcinoma (mRCC). They both are rapamycin derivatives and are categorized as mTOR inhibitors. There have been few reports that examined the difference between these two agents regarding adverse events. Our objective was to investigate the difference in the safety of both agents on the basis of our clinical experience.
Materials and Methods: We identified patients with mRCC who had been treated with everolimus or temsirolimus at our hospital. Treatment duration, relative dose intensity, laboratory data, and adverse events during treatment with each agent were evaluated.
Results: A total of 53 patients were evaluable, of which. 37 had been treated with everolimus and 16 with temsirolimus. Eight patients had received both of the agents. There was no significant difference in age and gender between the two treatment groups. Median treatment durations of the everolimus and temsirolimus groups were 8.7 months and 4.7 months, respectively. Relative dose intensities of the everolimus and temsirolimus groups were 74.7% and 77.6%, respectively. Anemia, hypertriglyceridemia, hypercholesterolemia, hyperglycemia, and leucopenia were detected with higher frequency in the everolimus group. Anorexia of grade 3 was only counted in the temsirolimus group. 14% of patients in the everolimus group developed any grade of the interstitial lung disease (ILD) including 6% of grade 3, whereas ILD was reported in 6% of patients treated with temsirolimus with no grade 3 or higher. Frequencies of adverse events of grade 3 or higher were 35% in the everolimus group and 19% in the temsirolimus group.
Conclusions: Adverse-event profiles of everolimus and temsirolimus may differ from each other. Respiratory disorders may occur more frequently in patients treated with everolimus than temsirolimus. These findings suggest the difference in the route of administration of two agents may result in different adverse events even though they target the same molecule.

MP-08.20
Intravesical Recurrence Following Radical Surgery for Urothelial Carcinoma of the Upper Urinary Tract: Single Centre 10-Year Follow-up
Pathak S, Verghese A, Leveckis J
Doncaster Royal Infirmary, Doncaster, UK

Introduction and Objective: Upper urinary tract urothelial carcinoma (UUT-UC) is a relatively rare malignancy, accounting for 5% of urothelial cancers. In contrast to urothelial cancer of the bladder, UUT-UC tends to present at a higher stage and grade. Many long-term studies have evaluated South Asian populations, which may represent a different cohort of patients with UUT-UC from those seen in our practice in the UK. We reviewed our experience of UUT-UC over a 10-year period. We report on the incidence of intravesical recurrences, primary tumour grade and stage and prognostic factors.
Materials and Methods: We retrospectively reviewed the medical records of all patients who underwent a nephroureterectomy (open and laparoscopic) between 2000 and 2010. Of the 96 patients, 71 met the inclusion criteria. A previous history or concomitant bladder cancer, carcinoma-in-situ, neoadjuvant chemotherapy, non-urothelial cancer and follow-up < 12 months were excluded. Patient demo-

graphics, tumour location, pathological stage, grade, intravesical recurrences and disease-specific survival rates were evaluated. Univariate and multivariate analyses were performed using using Minitab version 16. Statistically differences were considered to be present at $P < 0.05$.
Results: Mean age of patients was 67.8 years (range 29-86). Of the 71 patients, 25 (35%) experienced subsequent intravesical tumour recurrence during a median follow-up of 45 months (range 12-140). The median time to recurrence was 10 months (range 3-45). Univariate analyses showed patients with low-stage tumours and those with multifocal tumours were more likely to subsequently, develop intravesical recurrence. Furthermore, there was a positive correlation between primary superficial tumours and intravesical recurrence. Tumour stage, lymphovascular invasion and nodal disease were poor prognostic indicators.
Conclusions: The incidence of intravesical tumour recurrence following nephroureterectomy for UUT-UC is comparatively high. Although, most recurrences occur during the early period, it persists over a long period of time. Higher tumour stage and lymphovascular invasion increases the risk of metastatic disease and therefore, such patients should be followed up more closely. Our results are supported by published data based on South Asian cohorts.

Moderated Poster Session 9
Prostate Cancer: Markers and Therapy
Tuesday, October 2
13:15-14:45

MP-09.01

Lateral Dominance of Positive Biopsy Cores Improves Prediction for Posterolateral Surgical Margin and Extracapsular Extension after Radical Prostatectomy

Han K, Kim K, Hong S
Dept. of Urology, Yonsei University College of Medicine, Seoul, South Korea

Introduction and Objective: We investigated whether lateral dominance of positive biopsy cores predicts posterolateral positive surgical margin (PL-PSM) and posterolateral extracapsular extension (PL-ECE) status in radical prostatectomy specimen.
Materials and Methods: A total of 3,034 patients underwent laterally directed 12-core prostate biopsy in our institution. Of them, 400 patients who underwent radical prostatectomy were included in this study. Patient age, prostate-specific antigen (PSA), PSA density, free-to-total PSA, clinical stage, prostate volume, trans-rectal ultrasound (TRUS) finding, were evaluated. From biopsy information, number of biopsy cores, number of positive cores, percentage of tumor and Gleason score were evaluated. Lateral dominance of positive cores was defined as number of positive cores in unilateral lobe of total number of positive cores.
Results: A total of 800 lobes were assessed in the analysis. PL-PSM in ipsilateral lobe presented in 153 lobes (25.9%) and ECE presented in 225 (38.1%). Univariate analysis showed that PSA, PSAD, abnormal TRUS finding, unilateral number of positive cores, total number of positive cores, percentage of tumor and positive core ratio were associated with PL-PSM and PL-ECE. Abnormal DRE and prostate volume were associated with PL-ECE but not with PL-PSM. Multivariate logistic regression analysis showed that PSA ($p=0.027$), abnormal TRUS findings ($p=0.004$), total number of positive cores ($p<0.001$), and lateral dominance of positive core ($p<0.001$) were independently associated with PL-PSM. On the other hand, another multivariate analysis showed that prostate volume ($p=0.051$), total number of positive cores ($p<0.001$), percentage of tumor ($p=0.036$) and lateral dominance of positive core ($p<0.001$) were independently associated with PL-ECE.
Conclusions: Lateral dominance of positive biopsy cores predicts PL-PSM and PL-ECE in prostatectomy specimen. Relative dominance of positive cores in one lobe suggests the higher risk of cancer remaining on ipsilateral surgical margin. Lateral dominance of positive biopsy cores can be used to improve preoperative predictability of PL-PSM and PL-ECE for surgical decision.

MP-09.02

Radical Prostatectomy (RP) with Extended Pelvic Lymphadenectomy (EPLND) For pT3b-T4 Prostate Cancer (PCa): Long-Term Results of a Single Centre

Brausi M, De Luca G
Dept. of Urology, AUSL Modena, Modena, Italy

Introduction and Objective: RP+EPLND has been suggested as a possible treatment option in patients with cT3 Pca by different groups. Few very-term data exist on the fate of pT3b-T4 PCa patients treated by RP+ EPLND. The objectives of this study were to evaluate the oncological outcomes of pT3b-T4 Pca patients >9 years after radical surgery and to observe side effects.
Materials and Methods: From March 2000 to December 2005, 602 radical prostatectomies have been performed by a single surgeon. There were 105/602 pts. (17.4%) who were staged as clinical T3. After surgery, 40/105 pts. were pT3b (31) or T4 (9). The mean age was 68.1 (range 51-76) and the mean pre-op PSA was 24.5 ng/ml (range 4-130 ng/ml). All the pts. were Mo (negative CT and bone scan). Surgery: a bilateral EPLND was always performed. The number of nodes removed varied from 20 to 45 (mean 32.5). The retrograde extraponeurotic approach with removal of Denonviller fascia was used. Nerve sparing was never attemped. Additional surgical margins of the prostatic fossa (bladder neck, lateral, base and urethra) were taken after RP for a more complete staging.
Results: P Stage: p T3b = 31, p T4 = 9. Grade: Gleason score < 6 = 2 (5%), Gleason score 7 = 7 (17.5%), Gleason score 8-10 = 28 (70%). Grade undetermined = 3pts. There were 30/40 pts. (92.5%) who had positive margins while 26/40 pts. (65%) had positive nodes: 20/31(64.5%) in pT3b and 6/9 (66.6%) in pT4. Mean follow-up was 110.3 months (range 86-140 mos). Two pts. were lost to follow-up and 1 pt. died after 15 days from surgery for pulmonary embolus. Thirty-seven pts were followed regularly. Of these 25 (67.6%) received immediate adjuvant Hormone therapy (HT) after RP. Two pts. had Radio (RT)-Chemotherapy+ HT and 2 pts RT+ HT. Overall survival was 57.5% (23/40 pts.). There were 18/40 who were T3b (45%) and 4/40 T4 (10). DSS was 75% (30/40 pts.): 23 were pT3b (57.5) and 6 pT4 (17.5%). There were 8/37 pts. who received RP+EPLND alone: 4/8 pts. had an undetectable PSA (0.001-0.01ng/ml), 3 had PSA of 0.8,2.7 and 3.6 ng/ml, in 1 pt. PSA was not available. There were 11/25 pts. (44%) treated with immediate HT who had an undetectable PSA (0.001-0.01ng/ml), 9/25 pts (36%) had PSA progression (O.8-17.8 ng/ml) and died of the disease. Complications: mortality 1/40 (2.5%), Lymphoceles = 35%. Rectal injuries = 5% with intra-op repair.
Conclusions: The combination of RP+ EPLND and HT +/-RT resulted in a valid treatment option for pts. with pT3b-T4 PCa. Nine-year disease specific survival (DSS) was 75%. There was 10% and 27.5% of pts. with surgery alone and surgery + immediate HT who had an undetectable PSA after 9 years. Larger studies are needed to confirm these results.

MP-09.03

Recurrence-Free Survival After Radical Prostatectomy and Extended Pelvic Lymph Node Dissection Regarding the Number of Lymph Node Metastases

Alekseev B, **Nyushko K**, Vorobyev N, Frank G, Andreeva Y, Chissov V
Moscow Hertzen Oncology Institute, Moscow, Russia

Introduction and Objective: To assess biochemical recurrent-free survival (RFS) in intermediate and high risk prostate cancer (PC) patients after radical prostatectomy (RPE) with extended pelvic lymph node dissection (E-PLND) in subject to number of lymph node (LN) metastases revealed.
Materials and Methods: Retrospective analysis of database from 595 patients after RPE and PLND since 2006 till 2011 in our institution was performed. There were 262 consecutive (PC) patients with intermediate and high risk, who had undergone (RPE) with E-PLND, included in the study. Patients with extensive LN metastases who received adjuvant hormonal treatment were excluded from the analysis. Mean patient's age was 67.8±6.47 (46-77) years; mean PSA level 14.8±10.7 (1.5-79.0) ng/ml. Mean number of LN removed was 24.96±7.6 (15-52). Mor-

phological stage pT2a-T2c was verified in 146 (55.7%) patients, pT3a-T4 – in 116 (44.3%). pN0 was found in 199 (76.0%); 1 or 2 LN metastases were found in 34 (12.9%); > 2 – in 29 (11.1%) patients. Morphological Gleason score 2-4 was in 3 (1.1%) patients, 5-6 – in 129 (49.2%), 7– in 100 (38.2%), 8-10 – in 24 (9.2%) patients. In 6 (2.3%) patients Gleason score was not assessed. Median follow-up (FU) time was 21.4±15.4 (6-73) months.
Results: During FU period recurrences were observed in 74 (28.2%) patients. Recurrences were diagnosed in 33 (16.6%), 17(50%) and 24 (82.6%) patients with pN0, with 1-2 LN metastases and with > 2 metastases respectively ($p<0.05$). Cumulative 2-year RFS was 85.4±3%; 44.96±10.7% and 22.6±8.5% in groups respectively ($p<0.0001$). Morphological stage, Gleason score and PSA level correlated with probability of PSA relapse after operation ($p<0.0001$).
Conclusions: RFS significantly differed in groups of patients with no metastases, 1-2 metastases and > 2 metastases revealed. Two-year RFS rate in patients with 1-2 LN metastases was 45%, thus these patients could be candidates for delayed hormonal treatment.

MP-09.04
Lymph Node Positive Prostate Cancer: The Impact of Extended Pelvic Lymph Node Dissection
Hinev A[1], Anakievski D[1], Hadjiev V[2], Angelov A[3], Kolev N[4], Klissarova A[5]
[1]Clinic of Urology, St. Marina University Hospital, Varna, Bulgaria; [2]Dept. of Statistics, University of Economics, Varna, Bulgaria; [3]Dept. of Pathology, St. Marina University Hospital, Varna, Bulgaria; [4]Clinic of Urology, G. Stranski University Hospital, Pleven, Bulgaria; [5]Dept. of Radiology, Varna Medical University, Varna, Bulgaria

Introduction and Objective: The impact of extended pelvic lymph node dissection (ePLND) in locally advanced prostate cancer (PCa) is still a matter of debate. We examined the lymph nodes (LNs) collected during ePLND in patients with PCa, and assessed the incidence and clinical impact of LN metastases.
Materials and Methods: A total of 205 patients with presumed organ-confined PCa underwent ePLND, followed by radical prostatectomy. Recently, ePLND was facilitated by preoperative intraprostatic injection of Tc-99m-nanocolloid and intraoperative detection of the sentinel LNs by gamma probe. All LNs harvested were processed separately for histological and immunohistochemical examination.
Results: The median (range) number of LNs removed was 13 (6-38). LN metastases were found in 54 patients (26.3%). Most of them were localized outside the obturator fossa, distributed as follows: obturator (39%), external iliac (15%), internal iliac (38%), common iliac (7%), and presacral LNs (1%). The LN status showed to have a significant impact on disease-free survival on univariate and multivariate analysis. The Kaplan-Meier estimates of the disease-free, the overall and the cancer-specific survival at the 10th year after surgery were 73.0%, 75.5% and 95.0% for LN negative disease, and 18.7%, 38.6% and 38.6% for LN positive disease, respectively. Patients with LN density < 15% had significantly longer disease-free survival ($p = 0.013$, log-rank test), similar to that of LN negative patients.
Conclusions: ePLND has a significant impact on proper staging, prognosis and oncological outcome of PCa. Our results confirm the necessity to perform ePLND in high-risk PCa.

MP-09.05
***in vivo* Assessment of 16α-[^{18}F] Fluoro-17β-Estradiol as a New PET Tracer for Evaluating ER Expression of Prostate Cancer Following Androgen Ablation Therapy**
Hasegawa Y[1], Oyama N[1], Takahara N[1], Miwa Y[1], Akino H[1], Mori T[2], Kiyono Y[2], Yokoyama O[1]
[1]Dept. of Urology, University of Fukui, Fukui, Japan; [2]Biomedical Imaging Research Center, University of Fukui, Fukui, Japan

Introduction and Objective: The expression and role of estrogen receptor (ER) in prostate cancer receiving androgen ablation therapy remains unclear. 16α-[^{18}F]fluoro-17β-estradiol (FES) is an ^{18}F-labeled compound of estradiol and is used for the detection of ERα–positive organs and disease. It was reported that FES accumulation was well associated with the concentration of ERα *in vitro* measurements, and it could there enable *in vivo* noninvasive measurement of ERα density. The purpose of this study was to assess the expression of ER by using FES in prostate cancer following androgen ablation therapy *in vivo*.
Materials and Methods: LNCaP tumor, a well established human prostate cancer cell line, was implanted in athymic male mice. Approximately 4 weeks after tumor implant, the mice were castrated surgically, and tumor volume was calculated. Before castration (control) and after 4, 8 or 12 weeks after castration, FES was administered via tail vein and tumor tracer uptake was determined with gamma counter 1h after injection. ERα expression of the tumor was determined with real-time PCR and immunohistochemical staining to assess the interaction between androgen ablation therapy and ERα expression.
Results: Tumor volume stopped increasing after castration, followed by gradual increase approximately 6 weeks after castration. The biodistribution study showed a gradual increase of FES uptake in tumors. ERα expression of tumors was also correlated with FES uptake.
Conclusions: These results of *in vivo* studies indicate that FES is a promising tracer in monitoring the expression of ERα in prostate cancer following androgen ablation therapy.

MP-09.06
Testosterone Replacement Therapy in Patients with High Risk Prostate Cancer After Radical Prostatectomy
Pastuszak A[1], **Miles B**[2], Khera M[1], Lipshultz L[1]
[1]Baylor College of Medicine, Houston, USA; [2]Methodist Hospital, Houston, USA

Introduction and Objective: Testosterone (T) replacement therapy (TRT) in the setting of prostate cancer (CaP), particularly high risk CaP, is controversial, with concern that exogenous T can stimulate CaP recurrence or progression. However, data supporting efficacy of TRT without and increased risk of progression of CaP continue to accrue. Here we present our data on the safety and efficacy of TRT in a cohort of hypogonadal men who have undergone radical prostatectomy for CaP, including men with high-risk CaP.
Materials and Methods: A retrospective review of 92 men with hypogonadism treated with TRT after radical prostatectomy for CaP between 2007-2011 was performed. Within this cohort, 64 men with low/intermediate-risk CaP (non-high risk) and 28 with high risk CaP (at least one of the following: 1) Gleason score ≥8, 2) positive surgical margins, or 3) positive lymph nodes) were included. Serum total T (TT), free T (FT), prostate specific antigen (PSA), hemoglobin (Hgb), and hematocrit (Hct) were assessed at TRT initiation and every 3-6 months thereafter out to >36 months. Biopsy and final pathologic Gleason (Gl) scores and surgical margins were also evaluated.
Results: Initial TT 288.6±121.1ng/dL, PSA 0.004±0.003ng/ml, Hgb 14.7±1.5g/

dL, and Hct 44.0±4.1%. Initial GI sums for high and non-high were 6.81±1.11 and 6.42±0.64 (p=0.152, respectively. Median follow-up was 22.5 months (range 1-49.5 months) at which time significant increases in mean TT and FT were observed in both high and non-high risk groups. Mean increases in Hgb of 1.46 g/dL (high risk, p=0.17) and 0.79 g/dL (non-high risk, p=0.03) were observed. No PSA recurrences were observed despite significant rise in PS in the high-risk group at median follow-up (0.004±0.003 to 0.014±0.019ng/mL, p=0.017) compared to the non-high risk group. Final pathologic diagnosis resulted in upgrading of 29% of patients, and downgrading of 11% of patients.
Conclusions: TRT is a viable treatment alternative in hypogonadal men with a history of CaP who have undergone prostatectomy, even those with CaP bearing high risk characteristics, with recurrence rates in our series below those published in other series of comparably matched men not treated with TRT.

MP-09.07
Can a Computer Manage Patients with Stable Prostate Cancer in the Community?
Salem H, Thomas S, Peracha A, Williams S, Hagen S, Pike S, Henley M
Royal Derby Hospital, Derby, UK

Introduction and Objective: Our recent clinical evaluation of the Clinical Decision Support Software (CDSS) suggested its ability to generate accurate management plans for patients with stable prostate cancer (SPC). Objectives: To test the CDSS ability to follow our updated clinical guidelines and to produce clinically accurate recommendations for managing SPC in the community.
Materials and Methods: The clinical investigators initially designed the summated guidelines and patient pathway. This was then translated into a computer algorithm. The study then measured the 3 human investigators and the CDSS ability to follow the agreed algorithm using an anonymised retrospective clinical data of 100 patients. The advised management plans were in the form of codes. All these codes including the ones generated from the CDSS were then compared and all the discrepancies were reviewed by the clinical expert panel.
Results: The CDSS generated 236 management codes for 100 patients. There was a mutual 100% agreement on the codes for only 46 patients. The clinical investigators individually reviewed their own codes' discrepancy with the software and there was a further agreement on 44 patients. This left the panel with 10 patients to discuss where one or more of the clinicians disagreed with codes. Four of these 10 discrepancies were found to be admin error in the data supplied to the investigators and there were no further concerns after revealing the correct data. The remaining 6 cases were discussed and the panel agreed that the CDSS was still following the clinical guidelines. However, the examiners then decided to amend one rule in the clinical pathway to enhance the management of this group of patients in the community. This update triggered a further re-test by running these 100 patients data through the software and comparing the outcome to the management plans suggested by the panel. Again the CDSS was able to adhere to the updated guidance without deviation.
Conclusions: CDSS can efficiently follow the defined algorithm and generate clinically accurate plans for managing SPC. The pathway and algorithm can both be upgraded and the CDSS adapt these changes without encountering any error.

MP-09.08
Clinical (Non-Histological) Diagnosis of Advanced Prostate Cancer: Evaluation of Treatment Outcome After Androgen Deprivation Therapy
Basson J, Heyns C, van der Merwe A, Zarrabi A
Stellenbosch University and Tygerberg Hospital, Tygerberg, South Africa

Introduction and Objective: Transrectal prostate biopsy may cause significant morbidity and even mortality despite

MP-09.08, Table 1.

	Clinical diagnosis		Histological diagnosis		
	n=90	%	n=96	%	p-value
Age (years)	69.4 (40.5-96.4)		68.5 (46.5-89.2)		
Clinical presentation					
Urinary retention	22	24.4	10	10.4	0.012
Skeletal pain	41	45.6	14	14.6	<0.001
Paraparesis/paraplegia	10	12.1	2	2.1	0.016
Clinical stage					
T1-2	5	5.6	49	51	
T3-4	84	93.4	47	49	<0.001
M0	6	6.7	26	27.1	
M1	46	51.1	19	19.8	<0.001
PSA at diagnosis (ng/ml)	3750.1 (33.8-157630)		295.4 (2.4-14390)		<0.001
Followup (months)	26.1 (0.6-159.7)		26.8 (9.3-61.1)		
Patients with PSA decrease after ADT	86	95.6	96	100	
Nadir PSA (ng/ml)	36.3 (0-453.0)		3.0 (0-70.2)		<0.001
Time to nadir PSA (months)	9.7 (0.5-50.9)		17.8 (1.6-86.8)		<0.001
Patients with PSA relapse after ADT	63	70.0	65	67.7	
PSA at relapse (ng/ml)	252.5 (0.5-2330)		20.7 (0.2-253)		<0.001
Time to PSA relapse (months)	18 (1.6-65)		43.3 (2.5-97.5)		<0.001
Patients alive at last follow-up	82	91.1	92	95.8	

antibiotic prophylaxis, especially with the recent emergence of highly resistant bacterial strains. Numerous studies have shown a strong association between serum prostate specific antigen (PSA) and tumour burden in men with adenocarcinoma of the prostate (ACP). The aim of this study was to evaluate the reliability of a non-histological diagnosis of ACP based on serum PSA and clinical features.
Materials and Methods: Androgen deprivation therapy (ADT) was used in 825 (56%) of 1467 men with ACP treated January 1996 through December 2007 at our institution, a university hospital serving a predominantly low-income population. The diagnosis of ACP was made histologically in 607 (73.6%) and clinically alone in 218 (26.4%) based on serum PSA >60 ng/ml and/or clinical T3-4 tumor and/or imaging evidence of metastases. We compared two randomly selected groups with a clinical only (n=90) versus histological diagnosis of ACP (n=96). Statistical analysis was performed with Fisher's exact test for contingency tables and Mann-Whitney test for non-parametric data. Values are expressed as mean (range).
Results: The group with a clinical (non-histological) diagnosis of ACP compared to the group with a histological diagnosis had a significantly greater proportion with retention, skeletal pain, paraparesis, stage T3-4 M1 cancer and higher PSA at presentation, higher PSA nadir, shorter time to PSA nadir and shorter time to PSA relapse after ADT. There were no significant differences in the proportions with PSA decrease and PSA relapse, duration of followup or patient survival at last followup. The results are shown in the Table.
Conclusions: A clinical (non-histological) diagnosis of advanced ACP can be made reliably, based on serum PSA and clinical features. This avoids the cost, discomfort and possibly serious complications of transrectal prostate biopsy, without compromising treatment outcome of ADT.

MP-09.09
Prediction of Androgen Deprivation Therapy Response Using Laser Captured Microdisection Technique in Patients with Metastatic Prostate Cancer
Fujimura T[1], Takahashi S[2], Urano T[3], Kume H[1], Takayama K[3], Murata T[1], Yamada Y[1], Obinata D[2], Inoue S[3], Homma Y[1]
[1]Dept. of Urology, The University of Tokyo, Tokyo, Japan; [2]Dept. of Urology, The Nihon University, Tokyo, Japan; [3]Dept. of Anti-Aging Medicine, The University of Tokyo, Tokyo, Japan

Introduction and Objective: Prostate cancer (PC) is assumed to be sensitive to androgen deprivation therapy (ADT). However, a recent investigation showed that ADT leads some PC to malignant phenotype. The aim of study is to predict ADT response by estimating quantitative androgen receptor (AR) genes expression in selected cells using laser captured microdissection (LCM).
Materials and Methods: The prostate biopsy specimens were obtained from 45 men with bones metastatic PC. The mean serum prostate-specific antigen (PSA) level was 8.6–13700 ng/mL (median 219 ng/mL). Gleason scores (GS) were ≤7 (n = 8), 8 (n = 10), 9 (n = 26), and 10 (n = 1). Extend of disease (EOD) were 1 (n=24), 2 (n=10), 3 (n=9), and 4 (n=2). ADT consisted of medical or surgical castration with or without anti-androgen agents. Tumor and stromal cells were separately collected by LCM (Leica 6500). Total RNA was isolated, cDNA was synthesized, and reverse transcriptase-polymerase chain reaction (RT-PCR) was conducted to assess the AR mRNA expression. We defined PSA nadir less than 0.01 as the good response to ADT. Correlations and area under the curve (AUC) to predict the good response were statistically analyzed using AR expression level and other parameters.
Results: Good responders (n=10) had significantly better cancer-specific survival than non-good responders (n=35) ($p = 0.0013$). There was no significant difference between ADT response and clinicopathological findings including age, GS, or PSA level. On the other hand, relative AR mRNA expression was significantly increased in both PC foci and stroma adjacent to PC ($p=0.003$ and 0.015, respectively). AUC of AR mRNA expression in PC was the highest among the parameters ($AUC=0.84$, $p<0.001$). Combining clinical and LCM data provided a significantly highly predictive model of good response in logistic model analysis ($p< 0.001$).
Conclusions: Our findings indicate that AR mRNA levels in cancer cells selectively collected from biopsy specimens by LCM efficiently predicted therapeutic response to ADT. Further analyses of AR downstream genes might detect more powerful predictors for the strategic PC treatment.

MP-09.10
Early Response in Alkaline Phosphatase as an Independent Predictive Factor for Disease Progression in Castration-Resistant Prostate Cancer Patients with Post-chemotherapy PSA Elevation
Han K, Kim K, Hong S
Dept. of Urology, Yonsei University College of Medicine, Seoul, South Korea

Introduction and Objective: Prostate-specific antigen (PSA) changes during the early phase of chemotherapy are known to be inaccurate surrogates for outcome in castration-resistant prostate cancer (CRPC). We investigated the potential value of serum markers related to skeletal metastasis as differentiating and/or surrogate biomarkers in CRPC patients.
Materials and Methods: We retrospectively reviewed 83 patients with CRPC who received chemotherapy from 2002 to 2008. Baseline levels and serial changes of serum PSA, alkaline phosphatase (ALP) and calcium were assessed. Pre-treatment clinical data and follow-up serum markers were also evaluated. We analyzed the relationship between serum markers and PSA flare and outcomes.
Results: Of 61 patients, PSA initially increased in 33 patients (54.1%) and PSA flare occurred in 14 (22.9%). Of the 14 patients with PSA flare, the initial ALP increased in 2 (14.3%) and the initial calcium level increased in 5 (35.7%). In contrast, of the 19 patients with PSA progression, the initial ALP increased in 16 (84.2%) and calcium increased in 9 (47.4%). Multivariate analysis showed that only an initial change in ALP was associated with the occurrence of PSA flare. In addition, outcome analyses revealed that an initial increase in ALP and PSA were independently associated with disease progression, but only an initial change in ALP was a significant predictor for progression in patients with an initial increase in PSA.
Conclusions: The early response in ALP level after chemotherapy is a differentiating marker between PSA flare and PSA progression and is an independent predictive marker for progression-free survival in CRPC patients with post-chemotherapy PSA elevation.

MP-09.11
Leukopenia as a Risk Factor for Osteonecrosis of the Jaw in Metastatic Prostate Cancer Receiving Zoledronic Acid and Docetaxel
Kume H[1], Miyazaki H[2], Nishimatsu H[1], Suzuki M[1], Fujimura T[1], Fukuhara H[1], Enomoto Y[1], Igawa Y[1], Hirano Y[2], Homma Y[1]
[1]Dept. of Urology, The University of Tokyo Hospital, Tokyo, Japan; [2]Dept. of Urology, The Fraternity Memorial Hospital, Tokyo, Japan

Introduction and Objective: The use of bisphosphonates (BPs) is associated with osteonecrosis of the jaw (ONJ). Chemotherapeutic agents including docetaxel (TAX) may increase the risk of ONJ, especially when administered concomitantly with BPs. The aim of this study was to determine whether TAX could increase the risk of ONJ in patients with prostatic adenocarcinoma (PC) receiving zoledronic acid (ZA), one of BPs that have been used in cancer patients.

Materials and Methods: The medical records of 111 PC patients receiving ZA between September 2006 and March 2011 at our institutions were reviewed to assess the incidence and risk factors for ONJ.

Results: Nine patients (8.1%) developed ONJ during a median follow-up of 14.5 months. Univariate analysis revealed that TAX chemotherapy (p=0.037, Hazard ratio (HR) 6.611), tooth extraction during ZA therapy (p<0.001, HR 11.254), and high PSA level (p=0.019, HR 8.008) at the start of ZA were predictive factors. Multivariate analysis showed that TAX chemotherapy (p=0.011, HR 56.35) and tooth extraction (p=0.039, HR 7.471) remained as independent predictors. Among those receiving TAX chemotherapy, multivariate analysis identified tooth extraction (p=0.009) and nadir WBC counts less than 1,000/μL during TAX chemotherapy (p=0.030) as the independent risk factors.

Conclusions: Multivariate analysis detected tooth extraction and nadir WBC counts less than 1,000/μL as the risk factors for ONJ in metastatic prostate cancer treated with ZA and TAX combination therapy, underscoring the significance of leucopenia in the development of ONJ.

MP-09.12

Functional Genetic Polymorphisms in the CYP19 Gene Decrease the Risk of Prostate Cancer and Alter the Response to Androgen Deprivation Therapy

Kanda S, Tsuchiya N, Narita S, Inoue T, Horikawa Y, Numakura K, Obara T, Satoh S, Habuchi T

MP-09.11, Table 1.

Variables		n	Univariate analysis		Multivariate analysis	
			Hazard Ratio (95%CI)	p value	Hazard Ratio (95%CI)	p value
Age 75 or younger		39	Referent	0.247		
76 or older		17	2.208 (0.540 - 11.007)			
Karnofsky performance status >=80%		48	Referent	0.291		
=<70%		8	<0.001 (0.035 - 2.722)			
Diabetes mellitus	No	45	Referent	0.805	Referent	0.298
	Yes	6	0.773 (0.111 - 5.524)		0.102 (0.001 - 7.561)	
Smoking	No	44	Referent	0.263		
	Yes	11	<0.001 (0.037 - 2.460)			
Tooth extraction (within 6 months)	No	50	Referent	<0.001*	Referent	0.009*
	Yes	6	10.747(10.940 - >100.0)		15.974 (1.990 - >100.0)	
Dentures use	No	29	Referent	0.425	Referent	0.916
	Yes	27	1.753 (0.431 - 7.362)		0.889 (0.099 - 7.983)	
Extent of disease, grades 1, 2		34	Referent	0.311		
grades 3, 4		20	0.365 (0.090 - 2.153)			
Visceral metastasis	No	53	Referent	0.732		
	Yes	3	<0.001 (0.001 - >100.0)			
PSA=<27.6 ng/ml (median)		24	Referent	0.004*	Referent	0.165
PSA>27.6 ng/ml		32	10.976 (1.921 - 34.062)		25.737 (0.263 - >100.0)	
Elevation of ALP (>360 IU/L)	No	32	Referent	0.322		
	Yes	24	0.376 (0.088 - 2.225)			
Anemia (hemoglobin<13.8 g/dL)	No	5	Referent	0.192		
	Yes	51	>100.0 (0.529 - 23.894)			
Analgesics use	No	34	Referent	0.526	Referent	0.790
	Yes	22	0.533 (0.093 - 3.378)		0.706 (0.054 - 9.163)	
Steroid use	No	5	Referent	0.351	Referent	0.075
	Yes	51	0.389 (0.010 - 5.229)		35.710 (0.697 - >100.0)	
Number of ZA administration =<5		26	Referent	0.815		
>5		30	1.203 (0.248 - 5.878)			
Nadir WBC<1000	No	48	Referent	0.083	Referent	0.03*
	Yes	8	3.230 (0.800 - 39.386)		0.080 (0.008 - 0.785)	

*, p<0.05; ZA=zoledronic acid; CI=confidence interval; ALP=alkaline phosphatase; TAX=docetaxel

Dept. of Urology, Akita University Graduate School of Medicine, Akita, Japan

Introduction and Objective: Genetic polymorphisms in the CYP19 gene (*CYP19*), which encodes aromatase involved in estrogen biosynthesis, are reported to be associated with a risk of prostate cancer and prognosis of prostate cancer patients. In this study, we investigated whether the genetic polymorphisms in *CYP19* affect the risk of prostate cancer, serum hormone levels (testosterone, estorone [E1], and estradiol [E2]), gene expression, response to hormonal therapy, and prognosis of prostate cancer patients.
Materials and Methods: We obtained the DNA samples isolated from the blood of 330 prostate cancer patients and 354 normal individuals. Three single nucleotide polymorphisms (SNPs) of *CYP19*, rs10459592, and rs4775936 in the promoter region of exon 2 and rs2470152 in intron 1 were genotyped, and the data were used for the case-control study, circulating hormone level analysis, and survival analysis. Reporter gene assays were performed to assess the promoter activity of *CYP19*. Reporter gene constructs including the two SNPs (rs10459592, rs4775936) were cloned into the pGL4 luciferase reporter vector. PC3 cells were transfected with the constructs. All reporter assays were performed four times or more.
Results: In the case-control study, each variant allele of the three SNPs significantly decreased the risk of prostate cancer. We examined the influence of each SNP on the serum hormonal level of TS, E1, and E2 in healthy men. The E1 to androstenedione ratio was significantly higher in men with a variant allele of each SNP. Haplotype analysis between rs10459592 and rs4775936 showed that the *AG* haplotype increased the risk of prostate cancer in a gene-dosage manner while the *CA* haplotype decreased the risk in a similar manner. A reporter gene assay in PC3 prostate cancer cell line revealed that the promoter activity of the *CA* haplotype was significantly lower than that of the *AG* haplotype (p=0.034). Patients with each variant allele had a significantly higher PSA nadir level (p=0.019 [rs10459592], p=0.016 [rs4775936]) and significantly shorter cancer-specific survival.
Conclusions: Genetic polymorphisms in *CYP19* may influence the serum hormone levels by modifying the promoter activity and affect the risk of prostate cancer, response to hormonal therapy, and survival.

MP-09.13
Comparison of 90-Day Readmission Rates Between Retropubic, Laparoscopic, and Robotic-Assisted Radical Prostatectomy
Ku P[1], Chung S[1,2,3], Keller J[4], Lin H[3], Huang C[5], Chen Y[6]
[1]Div. of Urology, Dept. of Surgery, Far Eastern Memorial Hospital, New Taipei, Taiwan; [2]Dept. of Urology, National Taiwan University Hospital, Taipei, Taiwan; [3]School of Health Care Administration, Taipei Medical University. Taipei, Taiwan; [4]School of Biochemistry and Laboratory Sciences, Taipei Medical University, Taipei, Taiwan; [5]Dept. of Urology, National Taiwan University Hospital, College of Medicine, Taipei, Taiwan; [6]School of Public Health, Taipei Medical University, Taipei, Taiwan

Introduction and Objective: This study aimed to examine the risk of 90-day readmission among patients undergoing retropubic radical prostatectomy (RRP), laparoscopic radical prostatectomy (LRP), and robot-assisted laparoscopic prostatectomy (RALP) in Taiwan.
Materials and Methods: We identified 2,741 hospitalized patients who underwent a radical prostatectomy. Of these 2,741 cases, 1,773 patients underwent RRP, 694 LRP, and 274 RALP. We performed a conditional (fixed-effect) logistic regression model to explore the odds of 90-day re-admission of radical prostatectomy among patients undergoing RRP,LRP, and RALP.
Results: In total, 257 out of the 2,741 (9.4%) sampled subjects were re-admitted within 90 days of the index radical prostatectomy. Patients undergoing a RALP had a significantly lower incidence rate of 90-day readmission than patients undergoing a RRP or LRP (3.6% vs. 10.7% vs. 8.2%, p<0.001). Compared to patients undergoing a RRP, the OR of 90-day re-admission for patients undergoing a RALP was only 0.35 (95% CI = 0.19-0.68) after adjusting for patient age, geographic region, year of surgery, score of Charlson Co-morbidity Index and surgeon age and the number of radical prostatectomy cases/year. However, there was no significant difference in the odds of being re-admitted within 90 days between patients undergoing a LRP and RRP. The adjusted odds of 90-day re-admission for patients undergoing a RALP were 0.46 (95% CI=0.23-0.94) those of patients undergoing a LRP.
Conclusions: Our study demonstrates that patients undergoing a RALP had a lower adjusted risk of 90-day readmission than patients undergoing RRP. However, no significant differences were identified between LRP and RRP.

MP-09.14
Can PSA Density Predict Your Risk of Having Prostate Cancer?
Fernando A, Montgomery B, Bott S
Frimley Park Hospital NHS Trust, Surrey, UK

Introduction and Objective: Increasingly, patients with a raised PSA are subjected to prostate biopsies due to uncertainty about their individual risk of having prostate cancer. Biopsies of the prostate are generally safe, but can be associated with significant morbidity. We look at whether PSA density can be used to reliably predict the likelihood of having significant prostate cancer.
Materials and Methods: We looked retrospectively at all patients who underwent diagnostic template prostate biopsies from April 2007-November 2011. Demographic data, PSA, prostate volume, number of cores and histology results (divided into 1) benign 2) clinically insignificant 3) clinically significant) were collated. PSA density was then correlated with histological results.
Results: There were 514 patients with a mean age of 68.4 years. PSA density ranged from 0.01 to 1.31.
The incidence of clinically significant prostate cancer increases with PSA den-

MP-09.14, Table 1.

PSA Density	Benign	Insignificant Cancer	Significant Cancer
0.01–0.05	11(78.6%)	1(7.1%)	2(14.3%)
0.06–0.15	122(53.3%)	45(19.7%)	62(27.0%)
0.16–0.30	105(50.0%)	24(11.4%)	81(38.6%)
0.31–0.45	9(28.0%)	2(6.2%)	21(65.6%)
0.46–0.60	4(30.8%)	2(15.4%)	7(53.8%)
0.61–1.31	0(0.0%)	0(0.0%)	6(100.0%)

sity. At lower PSA densities the likelihood of having benign or clinically insignificant disease is far greater than having significant prostate cancer, but still not negligible. Of note, no patients with 'clinically insignificant' cancer have required treatment to date.
Conclusions: An individual's PSA density can predict their likelihood of having clinically significant prostate cancer. This information should be used when counselling patients about the need for prostatic biopsy. This may avoid unnecessary biopsies and morbidity.

MP-09.15
Genetic Variation of Matrix Metalloprotease 9 (MMP-9) Predominant in Asian Populations Associated with Good Prognosis Prostate Cancer
Gil-Ugarteburu R[1], González Rodríguez I[2], Rivas del Fresno M[2], Benito García P[2], Fernández Somoano A[3], Tardón García A[3]
[1]Div. of Urology, University Center Jove Hospital Foundation, Gijon, Spain; [2]Div. of Urology, Cabueñes Hospital, Asturias, Spain; [3]Dept. of Epidemiology, Oviedo University, Asturias, Spain

Introduction and Objective: MMP-9 has been related to prostate cancer development. Q279R is a functional polymorphism of MMP-9. Polymorphic allele (R) of Q279R polymorphism is associated with prostate cancer with low Gleason score in patients subjected to radical prostatectomy but is not linked with non-risk-stratified prostate cancer. In Asian populations allele R is the wild allele not the polymorphic allele, the contrary to what occurs in the rest of the population. The aim of this study is to analyze the association of the Q279R polymorphism with the risk and prognosis of prostate cancer.
Materials and Methods: A hospital-based prospective cohort of 238 Caucasian patients was studied. Prostate biopsy and blood extraction was performed on all patients. Q279R genotype was identified using RFLP technique (restriction fragment length polymorphism) on leukocyte DNA.
Results: Statistically significant differences were found comparing genotypical frequencies based on the prostate biopsy results (p=0,023) and in the subgroup with PSA 4-10 ng/dl (p=0,024). Because all the patients with doubtful lesions (prostatic intraepithelial neoplasia or atypical proliferation) in prostate biopsies had one polymorphic allele at least of genotype of Q279R. No statistical differences were found when comparing genotypical frequencies based on Gleason score (p=0,304) nor when comparing patients without tumor with patients with prostate cancer stratified by Gleason score (p=0,102; p=0,811; p=0,924). Statistically significant differences were found comparing genotypical frequencies based on Gleason score in subgroup with PSA 4-10 ng/dl (p=0,019). Around 85% of polymorphic genotypes (RR) are associated with Gleason score under 6. No statistical differences were found when comparing genotypical frequencies based on tumoral stage (p=0,746; p=0,487; p=0,672).
Conclusions: Polymorphic allele (R) of Q279R polymorphism in Caucasian population is associated with prostate cancer with low Gleason score in PSA levels 4-10 ng/dl. Doubtful lesions have one polymorphic allele at least on genotype of Q279R. These findings support the theory that Q279R polymorphism is linked with good prognosis prostate tumors. Given that in Asian countries the allele R is more common than the Q, the Q279R polymorphism could be one of the genetic components responsible for the epidemiological differences between Asian populations and those in the rest of the world.

MP-09.16
Prospective Multicenter Evaluation of PCA3 and TMPRSS2-ERG Gene Fusions as Diagnostic and Prognostic Biomarkers for Prostate Cancer
Leyten G[1], Hessels D[2], Cornel E[3], de Reyke T[4], Vergunst H[5], Kil P[6], Knipscheer B[7], van Oort I[1], Mulders P[1], Schalken J[1]
[1]Dept. of Urology, Radboud University Nijmegen Medical Centre, Nijmegen, The Netherlands; [2]Dept. of Research and Development, Noviogendix, Nijmegen, The Netherlands; [3]Dept. of Urology, ZGT Hospital, Hengelo, The Netherlands; [4]Dept. of Urology, AMC University Medical Centre, Amsterdam, The Netherlands; [5]Dept. of Urology, CWZ Hospital, Nijmegen, The Netherlands; [6]Dept. of Urology, St. Elisabeth Hospital, Tilburg, The Netherlands; [7]Dept. of Urology, Scheper Hospital, Emmen, The Netherlands

Introduction and Objective: PCA3 and ets gene fusions are two prostate cancer specific biomarkers that can be measured in urine. Our aim was to evaluate the diagnostic and prognostic value of Progensa PCA3 and TMPRSS2-ERG gene fusions (as individual biomarkers and as a panel) in a prospective multicenter setting.
Materials and Methods: We prospectively collected post-DRE first-catch urine specimens prior to prostate biopsies in six clinics. We assessed the predictive value of Progensa PCA3 and TMPRSS2-ERG (quantitative nucleic acid amplification assay to detect TMPRSS2-ERG mRNA) for prostate cancer, Gleason score, and clinical tumour stage (individually and as a marker panel). This was compared to serum PSA and the ERSPC risk calculator. In a subgroup (n=61) we evaluated biomarker association with prostatectomy outcome.
Results: Of the 497 men that were included, urine samples of 443 men contained sufficient mRNA for marker analysis. Prostate cancer was diagnosed in 196/443 men. Serum PSA, PCA3 and TMPRSS2-ERG correlated all significantly with prostate cancer. Both PCA3 and TMPRSS2-ERG had significant additional predictive value to the ERSPC risk calculator parameters in multivariate analysis (p<0·001 and resp. p=0·002). The AUC increased from 0·799 (ERSPC risk calculator), to 0·833 (ERSPC RC+PCA3), to 0·842 (ERSPC RC+PCA3+TMPRSS2-ERG). Sensitivity of PCA3 increased from 68% to 76% when combined with TMPRSS2-ERG. TMPRSS2-ERG had significant additional predictive value to the ERSPC risk calculator to predict Gleason score and clinical tumour stage, whereas PCA3 did not.
Conclusions: PCA3 and TMPRSS2-ERG are valuable diagnostic markers for prostate cancer. TMPRSS2-ERG had independently additional predictive value to PCA3 and the ERSPC risk calculator parameters for predicting prostate cancer. Furthermore, TMPRSS2-ERG had prognostic value, whereas PCA3 did not. By implementing the novel biomarker panel PCA3 and TMPRSS2-ERG into clinical practice, this would lead to a considerable reduction of prostate biopsies.

MP-09.17
Utility of PCA3 Urine Assay in Japanese Men Undergoing Prostate Biopsy
Ochiai A[1], Okihara K[1], Kamoi K[1], Shimazui T[2], Oikawa T[3], Tomita K[4], Murayama S[4], Umekawa T[5], Uemura H[5], Miki T[1]
[1]Dept. of Urology, Kyoto Prefectural University of Medicine, Kyoto, Japan; [2]Dept. of Urology, University of Tsukuba, Ibaraki Clinical Education and Training Center, Tsukuba, Japan; [3]Dept. of Urology, University of Tsukuba, Tsukuba, Japan; [4]Dept. of Urology, Japanese Red Cross Medical Center, Tokyo, Japan; [5]Dept. of Urology, Kinki University, Sayama, Japan

Introduction and Objective: To examine the diagnostic performance of PCA3 score for prostate cancer in Japanese men undergoing prostate biopsy.
Materials and Methods: The Japanese, multi-center study included 647 men who underwent prostate biopsy with elevated PSA and/or abnormal digital rectal examination (DRE) from 2009 to 2011. The race was Asian in all case. Urine samples were collected after DRE. PCA3 score was determined using PROGENSA PCA3 assay and correlated with biopsy outcome. The diagnostic accuracy of PCA3 score was compared with serum PSA, prostate volume (PV), PSA density (PSAD), and free/total PSA ratio (f/t PSA). PCA3 score was also correlated with Gleason score, clinical stage, % positive cores, and indolent/significant cancer in men diagnosed with prostate cancer.
Results: The urine samples were successfully analyzed in 633 out of 647 cases (informative rate was 98%). The median PSA was 7.6ng/ml. The biopsy revealed cancer in 264 men (41.7%). PCA3 score in men with prostate cancer was significantly higher than that in men with negative biopsy (median PCA score; 49 vs 18, $p<0.001$). The probability of prostate cancer was 16.0% at a PCA3 score of less than 20 and 60.6% at PCA3 score of 50 or more. Using a cutoff of 35, PCA3 score demonstrated 66.5%, 71.6%, and 69.7% of sensitivity, specificity and diagnostic accuracy, respectively.. The AUCs of PSA, PV, PSAD, and PCA3 score were 0.583, 0.706, 0.712, and 0.748, respectively. The AUC of PCA3 score was significantly higher than that of f/t PSA in men with PSA 4-10ng/ml (0.742 versus 0.647, $p<0.05$). In men with PV >50ml and PCA3 score <20, only 1 (1.7%) out of 56 men had prostate cancer. There were no significant correlations between PCA3 score and Gleason score, clinical stage, % positive cores, and indolent cancer.
Conclusions: PCA3 score was significantly superior to f/T PSA in predicting prostate cancer for men with PSA between 4 to 10 ng/ml. PCA3 score may be useful to reduce the number of unnecessary biopsies especially in men with large prostate.

MP-09.18
Diagnostic Significance of Prostate-Specific Antigen, Density Accuracy and PSAD Adjusted by Transition Zone Volume in Men with PSA Levels Between 2.0 and 4.0 ng/ml
Abbar M, **Janane A**, Ould Ismail T, Ghadouane M, Ameur A
Dept. of Urology, Military Hospital For Instruction MEDV, Rabat, Morroco

Introduction and Objective: To assess the diagnostic significance of prostate-specific antigen (PSA), density (PSAD) accuracy, and PSAD adjusted by transition zone volume (PSATZD) in men with PSA levels between 2.0 and 4.0 ng/ml.
Materials and Methods: Between 2000 and 2010, 138 men with PSA levels between 2 and 4.0ng/ml underwent transrectal ultrasonography (TRUS) and 12-core prostate biopsy. Diagnostic accuracies for various cut-offs of PSAD and PSATZD were investigated according to subdivided PSA levels of 2.0 to 3.0 ng/ml and 3.1 to 4.0 ng/ml.
Results: The detection rate of prostate cancer was 23.8% (32/134). The percentage of patients with extracapsular disease was 28.1% (10/32) and primary Gleason grade 4 or 5 was obtained in 8/32 cases (25%) patients. The transition zone volume and PSATZD in cancer cases were significantly different in comparison with those in non-cancer cases. The area under the receiver operating characteristic curve for PSATZD was significantly higher in comparison with that for PSAD in the same subdivided PSA ranges. The diagnostic efficiency for PSATZD was higher than that for PSAD. The diagnostic efficiency showed the highest value at the cut-off level for PSATZD of 0.23 and 0.28 in men with PSA levels of 2.0 to 3.0 ng/ml and 3.1 to 4.0 ng/ml, respectively.
Conclusions: The use of PSATZD cut-offs as a biopsy indication may reduce many unnecessary biopsies without missing most prostate cancer cases in the PSA range of 2.0 to 4.0 ng/ml.

MP-09.19
PCA3 Surpasses Best Clinical Judgment in Selecting Men Requiring a Repeat Prostate Biopsy: Application of a RAND Decision Model to the REDUCE Trial Placebo Cohort
Volpe A[1], Tombal B[2], Andriole G[3], Smets L[4], Stoevelaar H[4]
[1]University of Eastern Piedmont, Maggiore Della Carità Hospital, Novara, Italy; [2]Université Catholique de Louvain, Brussels, Belgium; [3]Washington University School of Medicine, St. Louis, USA; [4]Ismar Healthcare, Lier, Belgium

Introduction and Objective: There is need to better individualize the decision for repeat biopsy (rBx) and to reduce the number of rBx and over-diagnosis of indolent prostate cancer (PCa). Using the RAND Appropriateness Method (RAM), we developed a model to simulate best clinical judgment (BCJ) to select patients for rBx and incorporated the PROGENSA® PCA3 assay. PCA3 has been shown to predict the probability that a rBx will be positive and may be indicative of PCa significance.
Materials and Methods: We have tested our RAM on men of the placebo cohort of the REDUCE study for which PROGENSA® PCA3 scores were available. These men had a baseline PSA 2.5-10 ng/mL, a prior negative Bx, and planned 2-year and 4-year rBx. For each scenario (with and without PCA3), the number of rBx and the number of missed high-grade (Gleason sum ≥7) cancers were assessed.
Results: Data from 1024 subjects were available for analysis. Using BCJ (RAM), incorporating PSA, DRE, number of previous negative Bx, prostate volume and life expectancy, 26% of study-mandated rBx were ruled out while missing 14 high-grade PCa (Table). PCA3 largely surpassed BCJ by ruling out 52% of rBx while missing only 7 high-grade PCa. The most efficient scenario was obtained by combining PCA3 results and BCJ, leading to a 64% reduction in the number of rBx while missing only 8 high-grade PCa. The sensitivity, specificity, PPV and NPV of the RAM model including PCA3 for Gleason sum ≥7 PCa were superior to the RAM model alone and PCA3 alone.
Conclusions: In men with a first negative biopsy, PCA3 alone or in combination with BCJ surpasses BCJ as a strategy to avoid rBx without compromising diagnosis of high-grade cancer.

MP-09.19, Table 1.

Scenario	rBx (n)	Reduction (%)	Missed high-grade PCab (n)
REDUCE	1024		0
RAM[a] without PCA3	757	26%	14
PCA3 alone	488	52%	7
RAM[a] with PCA3	368	64%	8

a: expert recommendations; b: out of 55 Gleason sum ≥ 7 cancers

MP-09.20

Intermediate Clinical Outcomes of Robot-Assisted Laparoscopic Prostatectomy (RALP)

Araki M[1], Gu X[2], Spaliviero M[3], Wong C[5]
[1]Department of Urology, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama, Japan; [2]The First Clinical Medical College at Yangzhou University, Yangzhou, China; [3]University of Oklahoma Health Sciences Center, Oklahoma City, USA; [4]SouthWest Urology, Inc., Parma Community General Hospital, Middleburg Heights, USA; [5]Ahuja Medical Center, University Hospitals, Beachwood, USA

Introduction and Objective: We review our experience of RALP with a minimum follow-up duration of 24 months.
Materials and Methods: The hospital records of consecutive patients who underwent transperitoneal RALP by a single surgeon (CW) were reviewed. A bladder neck sparing dissection was preferentially performed and the urethrovesical anastomosis was completed using a running double-armed 3-0 Monocryl suture. On postoperative day 5 or 6 (clinic logistics), the urethral catheter was removed following a normal cystography. Clinical outcomes and adverse events are presented.
Results: There were 233 patients who had a mean age of 62.7±6.7 years and serum PSA of 6.2±4.6 ng/mL. Median operative time was 190 minutes and estimated blood loss was 75 mL. 3 (1.3%) patients required bladder neck reconstruction, while 198 (85.0%) had bilateral, 20 (8.6%) had unilateral and 15 (6.4%) did not undergo nerve sparing prostatectomy. 199 (85.4%) patients had negative surgical margins. Median hospitalization and urethral catheter duration were 1.0 and 5.0 days, respectively. At 6 weeks, a median 1.0 pad per day usage was reported and mean AUASS (9.7±7.3 vs. 5.7±2.8, $p=0.001$) and QoL (1.9±1.4 vs. 1.4±1.0, $p=0.001$) were significantly improved from baseline. 69.1% of patients achieved urinary continence without pads at the 3 month follow-up interval and 95.7% of patients were continent at 12 months. 52.3% of patients having a nerve sparing procedure achieved potency within 24 months following RALP. The incidence of adverse events were low: 5 (2.1%) patients had prolonged urine leak, 3 (1.3%) patients experienced a pelvic hematoma, 1one (0.4%) patient had a urinary tract infection, and 2 (0.9%) and 5 (2.1%) patients developed deep vein thrombosis and bladder neck contractures (BNC), respectively. BNCs developed at an average 5.3 (4-7) months postoperatively and were successfully managed by transurethral incision (TUIBNC) using the holmium laser. 95.3% and 96.5% of patients at 12 and 24 months, respectively, had an undetectable serum PSA (<0.2 ng/mL). Five patients had adjuvant radiotherapy for positive surgical margins or PSA recurrence.
Conclusions: RALP is an effective treatment option for clinically localized prostate cancer that preserves ones quality of life with low patient morbidity.

MP-09.21

Exploration of Stage and Grade-Related Biomarkers of Prostate Cancer by Novel Proteomic Approach Using Laser-Microdissected Formalin-Fixed and Paraffin-Embedded Tissues

Kimura T[1], Yamamoto T[1], Kihara M[2], Kamata Y[3], Tanaka N[2], Otsuji M[2], Bando Y[4], Furusato B[5], Nishimura T[2], Egawa S[1]
[1]Dept. of Urology, Jikei University School of Medicine, Tokyo, Japan; [2]Medical ProteoScope Co., Ltd. Yokohama Bio Industry Center, Kanagawa, Japan; [3]Dept. of Oncology, Jikei University School of Medicine, Tokyo, Japan; [4]Biosys Technologies, Inc., Tokyo, Japan; [5]Dept. of Pathology, Jikei University School of Medicine, Tokyo, Japan

Introduction and Objective: New biomarkers of prostate cancer (PCa) which distinguish between aggressive cancers with metastatic potential and cancers with low risk for progression are required. Although proteomic analysis is useful for discovery of cancer biomarkers, PCa has some difficulties. Collecting fresh and homogeneous cancer tissue from prostatectomy (RP) specimens is difficult because PCa is multifocal and heterogeneous and accuracy of pathological diagnosis of frozen section is limited. In the present study, we performed shotgun LC/MS-based global proteomics using recently developed technique, laser-microdissection (LMD) of formalin-fixed and paraffin-embedded (FFPE) tissues to identify grade and stage related biomarkers from low and high Gleason score (GS) and metastatic PCa.
Materials and Methods: The nanoLC-MS/MS proteomics was performed using paraffin blocks of FFPE tissues obtained from RP specimens with low GS, high GS and biopsy specimens with metastatic cancer (n=5). Benign normal epithelium from RP specimens were used as control. Targeted cells were microdissected and proteins were extracted, digested and subjected to LC/MS. Identified proteins were semi-quantified by spectral counting and subjected further to statistical evaluation. Candidate proteins were extracted from 3D-scatter plot analysis based on *G*-test. Extracted candidates were validated using immunohistochemistry (IHC) and SRM MS assay.
Results: A total of 371 proteins were identified. According to 3D-scatter plot analysis, we have extracted 11 proteins as low GS specific marker candidates and 23 proteins as high GS specific marker candidates. Validation analysis using IHC and SRM MS assay revealed that methylcrotonoyl-CoA carboxylase b (MCCC2) and fatty acid synthase (FASN) were significantly higher expressed in cancer cells comparing to normal cells.
Conclusions: We established the global clinical shotgun proteomics that could work excellently within the small patients number feasibility study in PCa. To achieve such performance, combination of LMD of FFPE specimens, high-resolution mass spectrometry, spectral counting method and 3D-scatter plot analysis are indispensable.

Moderated Poster Session 10
Kidney Cancer: Various Topics
Tuesday, October 2
13:15-14:45

MP-10.01
Expression Changes of STAT3 and Phosphorylated STAT3 in the Clear Cell Renal Cell Carcinoma
Mesarosova L[1], **Svihra J**[2], Krenek P[3], Kyselovic J[3], Luptak J[2], Kliment J[2], Slavik P[4], Franova S[1], Klimas J[3], Ochodnicky P[3]
[1]Dept. of Pharmacology, Jessenius Faculty of Medicine, Martin, Slovakia; [2]Dept. of Urology, Jessenius Faculty of Medicine, Martin, Slovakia; [3]Dept. of Pharmacology and Toxicology, Faculty of Pharmacy, Bratislava, Slovakia; [4]Dept. of Pathology, University Hospital, Martin, Slovakia

Introduction and Objective: Transcription factor STAT3 has an important role in oncogenesis and proliferation of human tumors. STAT3 influences the expression of target genes including those involved in apoptosis, cell cycle regulation, and induction of growth (Bcl-2, cyclin D1). We observed the changes of expression of total STAT3 and phosphorylated STAT3 (pySTAT3) in clear cell renal cell carcinoma (ccRCC) and correlate their expression with prognostic indices of the disease progression.
Materials and Methods: Tumor samples and adjacent healthy kidney tissue were obtained after radical nephrectomy from patients with ccRCC. The expression of STAT3 and pySTAT3 were determined by immunoblotting analysis.
Results: STAT3 was detected in all samples, but changes in the expression of STAT3 were not observed. We found a high level of phosphorylation of STAT3 (control 100±22.78% and tumor 230.54±78.82%, P< 0.05). Additionally we studied the ratio of total STAT3 and pySTAT3 in regards to TNM classification and Fuhrman's nuclear grading. The ratio was significantly higher in all stages of TNM classification (control 100±22.78; T1-T2 157.64±37.14%; T3-T4 296.81±136.96%; P<0.05) and all grades of Fuhrman's nuclear grading (control 100±22.78; G1-G2 165.66±34.52%; G3-G4 301.90±151.31%; P<0.05) when compared to controls.
Conclusions: In this study we observed the expression of total STAT3 and pySTAT3 in ccRCC. STAT3 could be a new therapeutic target for the treatment of ccRCC.

MP-10.02
Frequent Expression of C5aR in Metastatic Renal Cell Carcinoma
Maeda Y[1], Wada Y[1], Kawano Y[1], Kikuchi K[2], Takahashi W[1], Honda J[1], Nakanishi J[1], Yatsuda J[3], Imamura T[4], Eto M[1]
[1]Dept. of Urology, Faculty of Life Sciences, Kumamoto University, Kumamoto City, Japan; [2]Medical Quality Management Centre, Kumamoto University Hospital, Kumamoto City, Japan; [3]Dept. of Immunogenetics, Faculty of Life Sciences, Kumamoto University, Kumamoto City, Japan; [4]Dept. of Molecular Pathology, Faculty of Life Sciences, Kumamoto University, Kumamoto City, Japan

Introduction and Objective: Anaphylatoxin C5a is the fragment of complement 5th component, which is a potent chemoattractant for leukocytes. Recent studies showed C5a receptor (C5aR) is aberrantly expressed in human cancers, which plays a crucial role in cancer invasion via enhancing cancer cell motility. In this study, we analyzed expression of C5aR in metastatic and non-metastatic renal cell carcinoma (RCC). The possible role of C5aR in renal cancer cells was also investigated by in vitro analysis.
Materials and Methods: We retrospectively investigated data from 127 Renal Cell Carcinoma patients who received radical/partial nephrectomy or renal biopsy between 2002 and 2011. C5aR expression in renal cell carcinoma samples were examined by immunohistochemistry using Formalin-Fixed Paraffin-Embedded tissue samples, and correlation between C5aR expression and clinicopathological parameters was analyzed. In addition, murine renal carcinoma cell line RenCa was stably transfected with murine C5aR cDNA, and the effect of C5a stimulation on signal transduction and cellular morphology was investigated by western blot and immunofluorescence, respectively.
Results: The median (range) age of the patients was 62 (22-87) years. 97 patients (66 men and 31 women) had non-metastatic RCC, whose median (range) age was 63 (22-85) years, and 30 patients (20 men and 10 women) had metastatic RCC (mRCC), whose median (range) age was 59 (30-87) years. Immunohistochemical analysis showed that C5aR expression was observed in 96.7% of RCC cases that was accompanied with metastatic foci, whereas only 50.5% of non-metastatic RCC that expressed C5aR (Fisher's Exact Test, p<0.001). There is no correlation between C5aR expression and other clinicopathological parameters. RenCa cells overexpressing mC5aR showed increased ERK activation upon C5a stimulation compared to control cells. F-actin staining using Alexa-conjugated Phalloidin revealed formation of actin stress fiber in mC5aR expressing RenCa cells by C5a stimulation.
Conclusions: These results suggest that C5aR expression may favor metastasis of RCC cells by ERK activation and cytoskeletal rearrangement.

MP-10.03
The Relationship Between ^{11}C-acetate Uptake and the Expression of Fatty Acid Synthase in Renal Cell Carcinoma: A Preliminary Clinical Study
Oyama N[1], Takahara N[1], Hasegawa Y[1], Miwa Y[1], Akino H[1], Okazawa H[2], Yokoyama O[1]
[1]Dept. of Urology, University of Fukui, Fukui, Japan; [2]Biomedical Imaging Research Center, University of Fukui, Fukui, Japan

Introduction and Objective: Fatty acid synthase (FASN) is known as one of the important enzymes for lipid metabolism of acetate. In this clinical study, we investigated the relationship between FASN expression and ^{11}C-acetate (AC) uptake into renal cell carcinoma (RCC).
Materials and Methods: A total of 13 patients with histologically diagnosed renal cell carcinoma were enrolled in this study. All patients underwent AC PET scan, followed by nephrectomy or partial nephrectomy. Regional values of tracer uptake were evaluated by using standardized uptake value (SUV), a normalized value corrected by using injection dose and body weight. After surgery, the FASN expression in the resected tumor tissues were evaluated using RT-PCR method.
Results: In total 13 renal tumors were evaluated. AC PET findings were positive in 12 of these 13 RCCs (92%). There was a positive correlation observed between SUV and FASN expression in the tumors. The size of the tumor which showed negative AC PET scan was less than 1 cm, while the size of the tumor which showed positive AC PET was more than 2 cm.
Conclusions: AC PET demonstrated a pronounced increase in tracer uptake in RCC if the tumor is more than 2 cm. The possible correlation between AC uptake and FASN expression was suggested.

MP-10.04
CAIX and MCT4 Suppression Down-Regulate the Cell Viability in Clear Cell Renal Cell Carcinoma

Nagao K[1,2], Smit F[2], de Weijert M[2], Jannink S[2], Muselaers S[2], Oosterwijk-Wakka J[2], Matsuyama H[1], Schalken J[2], Mulders P[2], Oosterwijk E[2]
[1]Dept. of Urology, Graduate School of Medicine, Yamaguchi University, Ube, Japan; [2]Dept. of Urology, Radboud University, Nijmegen Medical Center, Nijmegen, The Netherlands

Introduction and Objective: To identify potential targets in clear cell renal cell carcinoma (ccRCC), we performed a transcriptome analysis of ccRCC and normal kidney specimens. Based on the results, we analyzed the functional significance of carbonicanhydrase IX (CAIX) and monocarboxylate transporter 4 (MCT4) in ccRCC.
Materials and Methods: We extracted the total RNA from 60 ccRCC and 20 normal kidney specimens and performed a gene expression analysis on the human exon 1.0 ST array (Affimetrix). The expression profiles were analysed by unsupervised hierarchical average linkage clustering algorithm. The five best candidates showing the highest differences between ccRCC and normal kidney were further studied by immunohistochemical analysis. The mRNA and protein expression levels were evaluated in 7 ccRCC cell lines. To study the effects of CAIX and MCT4 cell lines were transfected with CAIX- or/and MCT4-siRNA. Furthermore, we measured the lactate concentration in the culture medium of the transfected cell lines.
Results: The transcriptome analysis revealed numerous highly overexpressed genes in ccRCC. The overexpression of the five best candidate markers (PHD3, FABP7, CAIX, NADH-1α; >10-fold, MCT4; 9.6-fold differential expression) was confirmed by immunohistochemical analysis. Staining patterns were strong and homogeneous for all the candidate genes except for FABP7. The down-regulation of CAIX and MCT4 at the mRNA and protein level persisted for 7 days after siRNA transfection. Based on MTT assays, functional suppression of CAIX or/and MCT4 resulted in significant growth inhibition, but no additive effect of MCT4 suppression on CAIX knockdown was observed. The functional suppression did not affect cell-migration. MCT4-suppression decreased the lactate level in the culture medium of the transfected cell lines.
Conclusions: We have identified several potential biomarkers for ccRCC related to hypoxia, metabolism and pH regulation. Functional suppression for CAIX and MCT4 down-regulates cell viability in ccRCC cell lines. MCT4 suppression might reduce the extracellular lactate level in the ccRCC, which might suppress angiogenesis. Further studies are required to evaluate their genuine value as therapeutic targets.

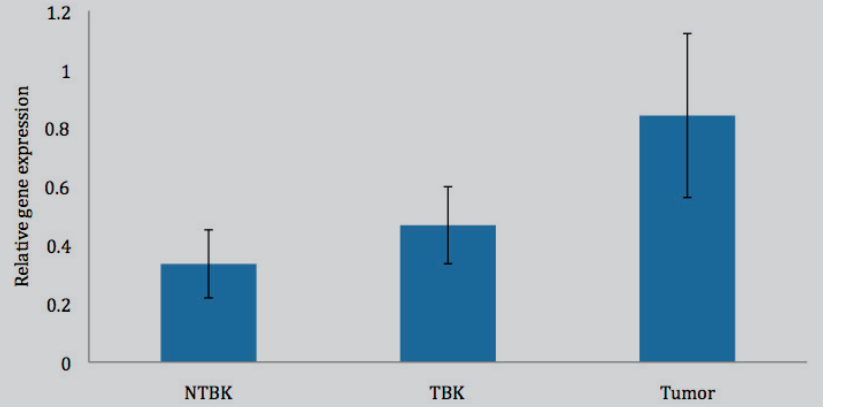
MP-10.05
Speckle Type POZ Protein (SPOP) as a Biomarker in Renal Cell Carcinoma
Chauhan A[1], Bhattacharyya S[2], Mandal A[1], **Singh S**[1]
[1]Dept. of Urology, PGIMER, Chandigarh, India; [2]Dept. of Biophysics, PGIMER, Chandigarh, India

Introduction and Objective: A search for reliable tumour marker in renal cell carcinoma is on. In recent study speckle type POZ protein (SPOP) was highly expressed on immunohistochemistry staining in more than 95% of Clear Cell Carcinoma. Treatment of patients with metastatic RCC using mTOR inhibitors has limitations. It is effective in a small proportion of the patients and has side effects. Therefore it is desirable to monitor the response of therapy with tumour marker. The present study was conducted to evaluated SPOP and mTOR in blood and tissue sample from patients with RCC.
Materials and Methods: Blood sample were collected from 44 patients of RCC and 10 healthy volunteers. Tumour tissue and normal looking renal tissue were collected separately from the nephrectomy specimen of the patients with RCC. Normal tissue was also collected from 5 nephrectomy specimen from patients of renal trauma. Gene expression of SPOP and mTOR at mRNA level was evaluated by RT-PCR. Statistical analysis was performed by one-way ANOVA.
Results: A significantly high gene expression of SPOP was observed in tumour tissue as well as in blood of patients with RCC as compared to controls ($p \leq 0.001$ and $p \leq 0.05$) respectively. Patients with high grade of RCC had high expression of SPOP. Gene expression of mTOR in blood was not significantly different in patients with RCC as compare to controls. However in tumor tissue the expression of mTOR was significantly higher as compared to normal renal tissue ($p \leq 0.001$). Conclusions: SPOP is a promising biomarker in RCC. Measurement of its expression in blood may also be helpful in monitoring the response of therapy with mTOR inhibitors in cases of metastatic RCC.

MP-10.06
The Expression of Matrix Metalloproteinase 9 Associates with Microvessel Invasion in Renal Cell Carcinoma Specimen
Yamaguchi K, Sato A, Obinata D, Nagane Y, Mochida J, Hirakata H, Kawata N, Hirano D, Takahashi S
Dept. of Urology, Nihon University School of Medicine, Tokyo, Japan

Introduction and Objective: Association of microvessel invasion (MVI) with other clinico-pathologic prognostic factors remains unclear. Matrix metalloproteinases (MMPs) and its related proteins are often expressed in cancer tissue including RCC, and their strong expression is a prognostic factor of RCC. To determine which one of clinico-pathologic factors including immunoreactivity of MMPs associates to MVI, we performed an immunohistochemical study.
Materials and Methods: All studies presented here were approved by institutional review board at Nihon University School of Medicine. Surgical specimens were obtained from 249 cases with renal cell carcinoma in our institution. They

MP-10.05, Figure 1.



consisted of 185 male and 64 female patients with an average age of 60.0 years old. The average observation period of them was 85.5 month. They included 135(54%) of Stage 1, 39(16%) of stage 2, 41(16%) of stage 3 and 34(14%) of stage 4. The histological classifications of them were 204(82%) cases of clear cell and 46(18%) of non-clear cell. We evaluated the status of immunohistochemical staining of MMP-2, MMP-9, membrane-type matrix metalloproteinase 1 (MT-MMP-1), tissue inhibitor of matrix metalloproteinase (TIMP)-1 and TIMP-2 for the renal specimen. The degree of immunoreactivity was semi-quantatively evaluated by one pathologist and classified to 4 grades (0, 1+, 2+, and 3+). Cell type, stage, Fuhrman's nuclear grade and micro-vessel invasion were also evaluated. For the statistical analysis, logistic regression test were used to determine significance.
Results: By the univariate analysis, all factors except TIMP-1 and TIMP-2 attained significance. The multivariate analysis identified MMP9 associates with MVI with an Odds ratio of 2.28 (95%CI: 1.508-4.934, p=0.0355). Pathological stage also had a significance with an Odds of 6.70 (95%CI: 3.514-12.730, p=0.0001) (Table).
Conclusions: Among the various MMPs and its related proteins that we examined, as well as clinic-pathologic factors, the expression of MMP9 and clinical stage associate with MVI.

MP-10.06, Table 1. Multivariate analysis (n=249)

	category	Odd's ratio	95%CI	P value
Cell type	clear/non clear	1.626	0.751-3.522	0.2173
Fuhrman's grade	low(1, 2)/high(3 , 4)	0.808	0.367-1.781	0.5967
Stage	localized (1, 2)/advanced (3, 4)	6.689	3.514-12.730	**0.0001**
MMP-2	weak(0, 1+)/strong(2+, 3+)	1.410	0.709-2.802	0.3268
MMP-9	weak(0, 1+)/strong(2+, 3+)	2.284	1.508-4.934	**0.0355**
MT-MMP-1	weak(0, 1+)/strong(2+, 3+)	0.779	0.333-1.822	0.5650

MP-10.07

Overexpression of FoxM1 is Associated with Tumor Progression in Patients with Renal Cell Carcinoma

Xue Y, Zhang G, Xu R, **Zou X**, Zhong X, Wu G, Wang X, Long D, Wu Y, Xu H, Liu M
Dept. of Urology, First Affiliated Hospital of Gannan Medical University, Ganzhou, China

Introduction and Objective: The Forkhead Box M1 (FoxM1) transcription factor has been shown to play important roles in regulating the expression of genes involved in cell proliferation, differentiation, and transformation. The present study was undertaken to investigate the expression of FoxM1 and its prognostic significance in renal cell carcinomas (RCC). Experiments in cell lines were also carried out.
Materials and Methods: Tumor tissue microarray was applied to examine expression of FoxM1 protein in archival kidney cancer samples from 150 patients and investigated its clinicopathologic significance. FoxM1 expression was knocked down by small interfering RNA in 786-0 and Caki-2 cells; proliferation migration, invasion, and angiogenesis were assayed.
Results: FoxM1 protein expression levels were positively correlated with primary tumor stage, distant metastasis, and histologic grade. Multivariate Cox analysis revealed that elevated FoxM1 expression was an independent prognostic factor for overall survival (P = 0.0012). Experimentally, we found that down-regulation of FoxM1 inhibited cell proliferation, decreased cell migration, and decreased invasion of cancer cells. Compared with control, FoxM1 small interfering RNA-transfected cells showed decreased expression of cyclin B, cyclin D1, and Cdk2. We also found that down-regulation of FoxM1 reduced the expression of matrix metalloproteinase-2 (MMP-2), MMP-9 and vascular endothelial growth factor, resulting in the inhibition of migration, invasion, and angiogenesis.
Conclusions: These results suggest that FoxM1 expression is likely to play important roles in RCC development and progression, and that FoxM1 is a prognostic biomarker and a promising therapeutic target for RCC.

MP-10.08

Decreased Incidence and Stage in Kidney Cancer Over Time in Sweden

Lyrdal D[1], Holmberg E[2], Aldenborg F[3], Peeker R[1], Lundstam S[1]
[1]Dept. of Urology, Sahlgrenska University Hospital, Göteborg, Sweden; [2]Dept. of Oncology, Sahlgrenska University Hospital, Göteborg, Sweden; [3]Dept. of Pathology, Sahlgrenska University Hospital, Göteborg, Sweden

Introduction and Objective: In contrast to the rest of the Western world the incidence of renal cell carcinoma (RCC) in Sweden has decreased since 1980. This may reflect better health of the population or decreased incidentally, i.e. autopsy diagnosed RCC. Since these tumours are smaller, relatively more advanced tumours would then enter the cancer registry. The aim of this study was to elucidate changes in diagnostics, tumour characteristics and survival between 1980 and 2000.
Materials and Methods: Adult patients (age >16 years) (n=515) with RCC were identified in a well-defined population-based area with the same changes in age-standardised incidence of RCC as the rest of Sweden. Patient data from three periods: 1979-81 (A), 1989-91 (B), 1999-01 (C) were collected for method of detection, tumour size, tumour type, metastasis, T-stage and Fuhrman grade at the time of diagnosis and cause-specific survival. Tissue samples were reanalysed according to modern standards.
Results: Of 515 patients (A: 202, B: 174, C: 139) registered for kidney cancer, records were available for 84%, 86% and 99% for A, B and C. After pathological re-evaluation incorrect diagnostic registration for each period was 7 (4.2%), 2 (1.2%) and 6 (3.6%), leaving 162, 147 and 131 for A, B and C , respectively. Ultrasound and computed tomography increased and autopsy and intravenous pyelography decreased as detection method. A significant change was towards smaller tumours (9.2 cm in period A and 7.8 cm in period C) and lower stages and grades with more recent time periods. Mean tumour size detected at autopsy was 5.1 cm. Metastatic disease was most common in the first time period. The distribution between the different histological tumour types did not change over time. Five-year cause-specific survival increased significantly from 41 to 63 months.
Conclusions: Our data support a true decrease in the incidence of RCC over time in Sweden with a migration towards lower tumour stages but no change in distribution between the different histological subtypes.

MP-10.09

Comparing the Distribution of Anatomical Complexity of Small Renal Masses Treated With Laparoscopic Cryoablation: PADUA Versus R.E.N.A.L. Nephrometry Score

Lagerveld B, van Dijk M, van der Zee H
Dept. of Urology, St. Lucas Andreas Hospital, Amsterdam, The Netherlands

Introduction and Objective: Renal tumor anatomical complexity defined with PADUA or R.E.N.A.L. nephrometry-scoring methods can be used as an independent predictor for complications in patients following surgical extirpation treatment. The aim of this study was to evaluate and to compare the outcome of the PADUA and R.E.N.A.L. nephrometry scores in a cohort of patients treated with laparoscopic cryoablation (LCA).
Materials and Methods: Single institution data from 89 consecutive laparoscopic renal tumor cryoablation procedures were retrospectively collected from December 2006 to February 2012. Renal mass anatomical complexity was categorized according to PADUA and R.E.N.A.L. nephrometry scoring methods. Each parameter of these scores is assessed using preoperative intravenous contrast enhanced Computed Tomography (CT).
Results: Using the PADUA index the score of low-, intermediate-, and high-grade complexity was assessed for 36, 35 and 18 tumors, respectively. Whereas, using the R.E.N.A.L. method, 42 tumors scored low-, 44 intermediate- and 3 high-grade complexities. Agreement or disagreement in complexity score for low-grade was found in 31/16 cases; for intermediate-grade in 24/30 cases, and for high-grade in 3/15 cases.
Conclusions: Objective anatomic classification systems such as PADUA and R.E.N.A.L. can be used to score the complexity of small renal masses treated with cryoablation. However, the agreement on the classification of intermediate- and high-grade complexity between the two scoring methods is poor.

MP-10.10
Assessment of Improved Staging of Small Renal Cancer Treated With Laparoscopic Cryoablation

Lagerveld B[1], van der Zee H[1], van Dekken H[2]
[1]Dept. of Urology, St. Lucas Andreas Hospital, Amsterdam, The Netherlands; [2]Dept. of Pathology, St. Lucas Andreas Hospital, Amsterdam, The Netherlands

Introduction and Objective: A limitation of laparoscopic cryoablation (LCA) of renal masses is the lack of tumor extirpative histology. So far, staging and follow-up pattern are based solely on the histological findings obtained by image-guided preoperative or laparoscopic assisted intraoperative biopsy. Staging is incomplete because biopsy specimen is not eligible for studying capsular or perirenal fat invasion. The objective of this study was to evaluate the histological outcome of an intraoperative core needle biopsy protocol and the existence of perinephric fat tissue invasion of patients treated with LCA for small renal masses.
Materials and Methods: From 2007 to February 2012, all patients treated with LCA were used for this retrospective study. Critical point in the cryosurgical procedure was a staunch dissection of the tumor allowing identification of the lesion and its border. When the perirenal fat appeared to be denser and adhesive to the tumor capsule, it was dissected and sampled for histological examination. Intraoperatively, before cryoprobe placement, a minimum of 3 biopsies was taken at different locations in the mass. Specimens were examined after normal hematotoxylin and eosin staining. If needed, immunohistochemic staining was used to accept or to attain final diagnosis.
Results: In total, 89 (mean ±SD diameter 30.5±7.7mm, range 19-50mm) renal masses were treated with LCA. Three patients had biopsies taken pre-operatively. One patient underwent 2 series of cryoablation for the same lesion. All biopsied renal masses were histological classified. In total, 75 renal cortical cancers (84.2%) and 14 benign lesions (15.8%) were diagnosed. Specification of subtype of malignant or benign lesion was possible in 87 cases (97.7%). Dense and adhesive peritumoral fat was found and sampled in 38 cases. In 33 (86.8%), the fat covered a proven carcinoma (mean ±SD diameter 32±7.3mm, range 19-50mm). Histology did not reveal malignant fat tissue invasion in all cases.
Conclusions: The malignancy rate of 83.7%, of *intraoperative* biopsies of small renal masses, was comparable to series reporting on extirpative histology. No existence of peritumoral fat tissue invasion was found. Therefore, no upstaging of all clinical T1 tumors treated with LCA occurred.

MP-10.11
Baseline Renal Function and Post-Operative Risk of Developing Chronic Kidney Disease (CKD) in Patients Undergoing Radical Nephrectomy and Donor Nephrectomy: There Can Be No Comparison

Tay M, Wu F, Tai B, Tan L, Aung A, Raman L, Tiong H
National University Hospital, Singapore

Introduction and Objective: To evaluate and compare the prevalence of baseline renal function in patients undergoing radical (RN) or donor nephrectomy (DN) and their risk of subsequent CKD after surgery.
Materials and Methods: Patients undergoing RN (n=118) and DN (n=59) at our institution between 2000 and 2008 were retrospectively reviewed. Baseline renal function (eGFR) was determined using the Modification of Diet in Renal Disease (MDRD) formula. CKD was defined as eGFR of lower than 60-ml/min/1.73 m^2 according to National Kidney Foundation guidelines. Clinical data including demographics and co-morbidities were recorded. Both patient groups were then compared.
Results: Before surgery, 27 (23.5%) patients from RN and no patients for DN had pre-existing CKD with an overall group mean eGFR(SD) of 74.8 (16.9) and 93.2 (31.8) ml/min/1.73 m^2 respectively. RN patients had significantly greater co-morbidity, including hypertension in 61(54%), diabetes in 20 (18%) and ischemic heart disease in 17 (15%), than the DN group (5%, 0% and 1.8% respectively) (P<0.01). Over a median follow-up period of 3.5 years, progression to CKD in patients with no baseline CKD occurred in 48.7% of RN and 25.9% of DN. Kaplan Meier analysis estimated that the median time to CKD was 5.8 years (95% CI 3.9-7.7) for the RN group and 8.3 years (95% CI 7.3-9.4) for the DN group (log rank p=0.001). Univariable analysis and Multivariable analysis age>50 (P=0.06, OR 2.7 (95% CI 1.0-7.8)), male sex (P=0.05, OR 1.7(95% CI 1.0-2.8)) and pre-operative baseline eGFR<80 ml/min/1.73m2 (P<0.001, OR 3.1(95% CI 1.8-5.4)) and RN (P=0.04, OR 1.9, (95% CI 1.0-3.4)) were significantly associated with CKD occurrence.
Conclusions: Despite common inference by clinicians during counseling of patients with kidney cancer, renal function outcomes from DN should not be extrapolated to patients undergoing RN as the greater prevalence of comorbids in the latter significantly accelerate renal senescence in the uninephrectomy state and greater risk of CKD.

MP-10.12
Morphological Aspects of the Kidney: Can Normality Be Predicted?

Surcel C[1], Mirvald C[1], Gingu C[1], Manu M[1], Udrea A[3], Savu C[2], Sinescu I[1]
[1]Clinic of Urology, Fundeni Clinical Institute, Bucharest, Romania; [2]ICU, Fundeni Clinical Institute, Bucharest, Romania, [3]Politechnical University,

Bucharest, Romania

Introduction and Objective: Our study aimed to assess the normal parameters of renal parenchyma and upper urinary tract from a contrast enhanced computed tomography assessment in order to create a mathematical model of normal kidney.
Materials and Methods: We conducted a retrospective observation study on 520 patients with a normal abdominal contrast enhanced CT scan in our Institute during November 2008–November 2010. All CT examinations were performed using 16 slices Siemens Emotion 2007 (Siemens Medical Solutions, Malvern, PA, USA). Two experienced radiologists evaluated all the evaluations and reformatted axial sections and after excluding patients with urinary tract pathology, the images were transferred to a separate workstation (eFilm Workstation™ 2.2.1, Merge Healthcare, Milwaukee, USA). Parameters measured were: the number of kidneys, craniocaudal diameter (CCD) in a coronar reconstruction, transverse diameter (TD) and anteroposterior diameter (APD) as the maximum diameter of the kidneys in the axial sections, parenchymal (PW) and cortical width (CW) in axial sections, kidney pyelon width (KPW), parenchymal index (PI), kidney rotation, measured in relation to the sagittal axial plane of reference (AR) and rotation of the kidney measured in the sagittal plane in relation to the coronary reference (SR). To identify factors that can influence the variables CCD, CW and PW, multivariate regression models were performed using SPSS software (SPSS 15, SPSS Inc., Chicago, Illinois, USA). We considered $p<0.05$ statistically significant.
Results: CCD remains high until the fifth decade of life ($p=0.0053$ on the right side, $p=0.0012$ on the left, ANOVA), PW values were found to be somewhat increased ($p=0.0293$ on the right side, $p=0.2924$ on the left, ANOVA). There are linear correlations between height and CCD, CW and PW, with statistical significance ($p<0.05$ each, Spearman p between 0.13 and 0.4). In multivariate analysis, only BMI, male gender and height had statistical significance.
Conclusions: There is a wide range in size kidney. Among factors that strongly influence the values of CCD, CW, and PW in adults, BMI, male gender and height are most important. Also, cranial and caudal position of the kidney influences renal size. As for the size of the renal cortex, the factor most influencing these values is the absence of a contralateral kidney.

MP-10.13
Clinical Significance of Preoperative Total Serum Cholesterol Level in Patients with Nonmetastatic Renal Cell Carcinoma
Ohno Y, Hashimoto T, Shimodaira K, Tanaka A, Okubo H, Sawada Y, Takizawa I, Ohori M, Tachibana M
Dept. of Urology, Tokyo Medical University, Tokyo, Japan

Introduction and Objective: Several studies have shown an association between low serum cholesterol level and cancer mortality. However, a study to elucidate the prognostic significance of serum cholesterol level in patients with nonmetastatic renal cell carcinoma (RCC) has not been performed. The aim of this study was to investigate the association between total serum cholesterol (TSC) level and prognosis in patients with nonmetastatic RCC.
Materials and Methods: We retrospectively reviewed the records of 348 patients with nonmetastatic RCC who underwent nephrectomy. TSC level was determined before the operation. The association among TSC level, age, gender, presentation mode, tumor size, clinical stage, performance status (PS), other laboratory variables, and oncological outcome (cancer-specific survival [CSS] and recurrence-free survival [RFS]) was analyzed.
Results: Preoperative mean ± standard deviation (SD) TSC level was 193 ± 37.8 mg/dl. The TSC level was positively correlated with body mass index. On the other hand, preoperative TSC level was inversely correlated with tumor size, pathological tumor stage, nuclear grade, and C-reactive protein level. The 10-year RFS rate of patients with TSC < 160 was significantly lower than that of patients with TSC ≥ 160 (55.0% vs. 75.1%, P = 0.002). Furthermore, the CSS rate of patients with TSC < 160 was significantly lower than that of patients with TSC ≥ 160 (73.5% vs. 92.7%, P < 0.0001). However, preoperative TSC level was not an independent predictor for RFS and CSS on multivariate analyses.
Conclusions: Low preoperative TSC level is associated with poor prognosis in patients with nonmetastatic RCC.

MP-10.14
Renal Ewing's Sarcoma/Primitive Neuroectodermal Tumor: Diagnostic and Therapeutic Approaches
El-Hefnawy A, Mosbah A, Abd El Rahim M, El Sherbiny M, Hassan M, Shaaban A
Urology and Nephrology Center, Mansoura University, Mansoura, Egypt

Introduction and Objective: To assess the different diagnostic modalities, efficacy of adjuvant therapy and oncological outcome of patients with Ewing's sarcoma/ Primitive neuroectodermal tumor of the kidney (ES/PNET).
Materials and Methods: Data files of seven patients with a diagnosis of renal ES/PNET have been reviewed. Immunohistochemical staining included CD 99, Cytokeratin, FLI-1 and WT-1 gene were utilized to confirm diagnosis. Adjuvant chemotherapy in the form of Cisplatinum and Etoposide was given. Follow up and oncological outcome was recorded.
Results: Loin pain was the main presenting symptom. At time of diagnosis, five patients had locally advanced and/or distant metastasis. Six patients underwent radical nephrectomy; two of them received adjuvant chemotherapy. In one patient, chemotherapy was given without surgery. Mean disease free survival was 4.8 months in 6 patients while one patient still lives free after 24 months. Immuno-histochemical studies showed strong and diffusely positive membranous pattern for CD99 in all patients. The positivity for FLI-1 was detected in four out of five cases (80%), the staining location is nuclear. No tumors expressed pancytokeratin or WT-1.
Conclusions: Combination of CD 99 as a positive marker and WT-1 gene as a negative marker is sufficient immunohistochemical techniques to diagnose ES/PNET. More research is needed to find more effective adjuvant protocols for this aggressive tumor.

MP-10.15
Papillary Renal Cell Carcinoma Type 1 and 2: Clinicopathological Characteristics and Prognosis
Yanagi M, Kimura G, Suzumura K, Tanabe K, Iigaya S, Kondo Y
Dept. of Urology, Nippon Medical School, Tokyo, Japan

Introduction and Objective: The aim of the study was to clarify the clinicopathological characteristics and prognosis of papillary renal cell carcinoma (PRCC) type 1 and 2.
Materials and Methods: We performed nephrectomy or partial nephrectomy in 501 patients with renal cell carcinoma in our institution from 1984 to 2009. The pathological specimens were reviewed and the histology was re-evaluated according to the 2004 WHO histological classification. The clinicopathological and

prognostic differences between type1 and 2 PRCC were studied.
Results: Of 501 cases, 43 were diagnosed as PRCC pathologically. Twenty-two and 21 cases were assigned to type 1 and 2, respectively. The difference in sex, age, performance status, and the number of tumors between type1 and 2 were not significant, but type 2 cases had significantly larger size, more advanced stage, higher incidence of symptomatic, higher CRP, higher grade compared to the type 1. The 5-year metastasis-free survival rates for type 1 and 2 were 94.4% and 28.4%, and the 5-year cancer-specific survival rates were 90.0% and 51.6%, respectively. Of 14 cases of PRCC type 2 with metastases, lymph node metastases were documented in 10 (71.4%), which was significantly higher than those of clear RCC (13.3%, $p<0.0001$).
Conclusions: Type 2 PRCC had aggressive nature while type 1 had indolent. Type 2 PRCC tends to metastasize to lymph nodes. Treatment strategies for metastatic PRCC should be targeted against type 2 subtype.

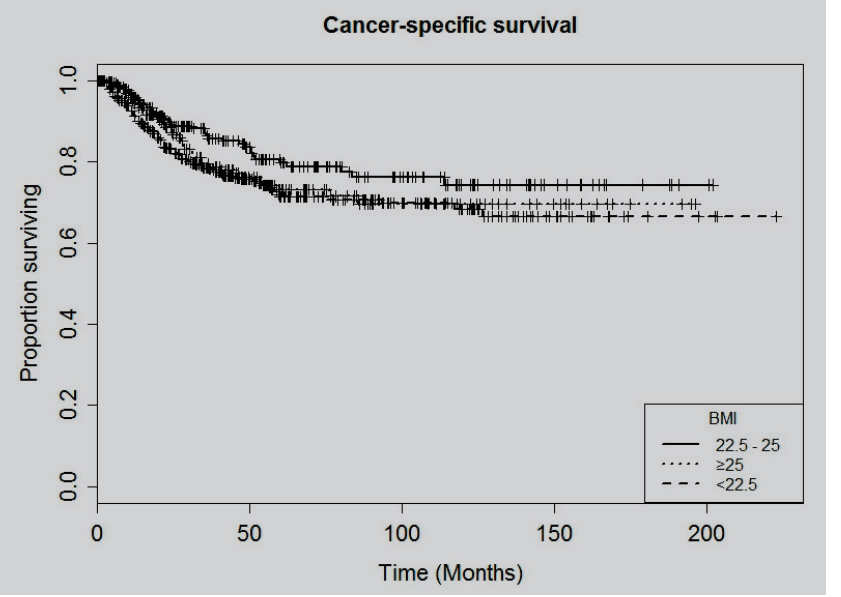
MP-10.16
Plasma Thymosin-α1 Level as a Potential Biomarker in Urothelial and Renal Cell Carcinoma
Jou Y[1], Tsai Y[2], Shen C[1], Lin C[1]
[1]Dept. of Urology, Ditmanson Medical Foundation Chia-Yi Christian Hospital, Chiayi, Taiwan; [2]Dept. of Urology, College of Medicine and Hospital, National Chung Cheng University, Chiayi, Taiwan

Introduction and Objective: To determine the plasma levels of thymosin-α1(TA1) and prothymosin-α proteins (PTMA) in renal cell carcinoma (RCC) or urothelial carcinoma (UC) patients, and explore the potential of these two molecules as biomarkers.
Materials and Methods: Blood samples were collected from 147 consecutive patients, including 97 UC [renal pelvis (n=29), ureter (n=15), and urinary bladder (n=53)] and 50 RCC patients, and from 55 patients with benign diseases. Their clinical characteristics were obtained from medical record review. Plasma TA1 and PTMA levels were measured using enzyme-linked immunosorbent assay and their correlation with tumor grade, pathologic stage, and survival were explored.
Results: Plasma TA1 levels were significantly lower in RCC patients than in UC or benign patients, particularly in UC of the renal pelvis patients ($p<0.0001$). Plasma PTMA levels were also significantly lower in UC patients compared to RCC patients and benign patients ($p<0.05$). Plasma TA1 levels inversely correlated with pathologic stage both in bladder cancer and RCC patients ($p=0.03$ and 0.02, respectively). Both plasma TA1 and PTMA correlated with tumor grade. Plasma TA1was a prognostic indicator for progression-free and disease-specific overall survival ($p=0.008$ and 0.04, respectively).
Conclusions: Plasma TA1 level may be a biomarker for differentiating between UC and RCC. It may also be a prognostic factor for disease progression and disease-specific survival in bladder cancer patients. These findings warrant more studies for validation.

MP-10.17
Bimodal Pattern of the Impact of Body Mass Index on Cancer-Specific Survival of Upper Urinary Tract Urothelial Carcinoma Patients: Multi-Center Study in a 1014-Case Tokyo Metropolitan Database of Urologic Disease (TMDU) Cohort
Junichiro I[1], Hitoshi M[1], Kazutaka S[1], Junji Y[2], Akira N[3], Toshihiko T[4], Shinji M[5], Yotsuo H[3], Iwao F[2], Kazunori K[1]
[1]Dept. of Urology, Tokyo Medical and Dental University, Tokyo, Japan; [2]Dept. of Urology, The Cancer Institute Hospital of JFCR, Tokyo, Japan; [3]Dept. of Urology, Saitama Cancer Center, Saitama, Japan; [4]Dept. of Urology, Tokyo Metropolitan Ohtsuka Hospital, Tokyo, Japan; [5]Dept. of Urology, Tsuchiura Kyodo General Hospital, Tsuchiura, Japan

Introduction and Objective: The impact of obesity on the prognosis of upper urinary tract urothelial carcinoma (UUT-UC) has not yet been fully explored. We investigated the association between body mass index (BMI) and cancer-specific survival (CSS) of UUT-UC in 1014 Japanese patients.
Materials and Methods: Of 1329 patients with UUT-UC in the Tokyo Metropolitan Database of Urologic Disease (TMDU), 1114 without distant metastasis treated by nephroureterectomy were enrolled in this study. The association between BMI which was categorized into the following three groups: Group 1 (BMI 22.5 to <25), Group 2 (BMI 25 or greater), and Group 3 (BMI <22.5) and CSS was analyzed. We estimated the hazard ratios and 95% confidence intervals for Groups 2 and 3 after adjusting the established predictors.
Results: Median BMI was 22.5 (range: 13.5–40.6). The number of patients in Groups 1, 2, and 3 was 285 (28%), 234 (23%), and 495 (49%), respectively. The median follow-up period was 38 months (interquartile range: 16–73), and 213 patients (21%) died of disease. In the total cohort, the 5-year CSS rate was 74%. The 5-year CSS rates in Groups 1, 2, and 3 were 80, 72, and 71%, respectively. Both above and below the range of 22.5 to 25, BMI was an independent predictor of CSS in multivariate analysis with established prognostic factors.
Conclusions: This is the first study demonstrating that the impact of BMI on the prognosis of UUT-UC as a bimodal pattern.

MP-10.17, Figure 1.



MP-10.18

Hyponatremia Predicts the Inferior Survival of Patients with Metastatic Renal Cell Carcinoma Treated with Molecular Targeted Therapy

Kawashima A[1], Takayama H[1], Sato M[1], Hatano K[1], **Fujita K**[1], Uemura M[1], Nakai Y[1], Nishimura K[2], Tsujimura A[1], Nonomura N[1]

[1]Osaka University Graduate School of Medicine, Suita, Japan; [2]Osaka Medical Center for Cancer and Cardiovascular Diseases, Suita, Japan

Introduction and Objective: Hyponatremia is reported to be associated with poor survival in localized renal cell carcinoma (RCC) and metastatic RCC (mRCC) treated with immunotherapy. However, there are no reports on the relation between hyponatremia and prognosis of mRCC treated with molecular targeted therapy. We evaluated the prognostic significance of hyponatremia in mRCC treated with molecular targeted therapy as first line therapy and analyze other prognostic factors including neutolophilia, platelets, and C-reactive protein (CRP).

Materials and Methods: We retrospectively analyzed a database comprising 87 patients treated from April 2008 to July 2011 with sorafenib and sunitinib as first-line therapy for mRCC. Patients were divided into three groups according to sodium level: severe hyponatremia (≤134 mEq/L), mild hyponatremia (135-137 mEq/L), and normal natremia (≥138 mEq/L).

Results: Severe and mild hyponatremia was significantly associated with the presence of bone metastasis and neutrophilia (p=0.001 and p=0.006, respectively). Median cancer specific survival (CSS) time was 10.3 months. Median CSS time was 8.8 months in the patients with severe and mild hyponatremia and 32.6 months in the patients with normal natremia (P <0.001). Multivariate analysis showed severe and mild hyponatremia to be significantly associated with CSS (HR: 2.910; 95% CI: 1.273–6.652, P = 0.011). In other clinical features, neutrophilia and high CRP level (CRP ≥1.0 mg/dl) were significant prognostic factors to predict inferior CSS (P = 0.016 and P = 0.004), respectively. In Harell's C index calculation, severe and mild hyponatremia was a significant independent predictor of inferior CSS, significantly increasing the C-statistic from 0.759 to 0.820 (increase of 0.062: 95%CI: 0.007-0.116, p=0.028).

Conclusions: We found hyponatremia (<138mEq/L) to be the significant factor to predict inferior CSS together with neutrophilia and high CRP level. Moreover, hyponatremia might be significantly associated with chronic inflammation and tumor aggressiveness.

Moderated Poster Session 11
Pediatric Urology
Tuesday, October 2
13:15-14:45

MP-11.01
Outcome of Laparoscopic Upper Heminephrectomy in Children: Two Centers Experience
Gözen A[2], Teber D[2], Badawy H[1], **Assem A**[1], Rassweiler J[2]
[1]Sec. of Pediatric Urology, Dept. of Urology, University of Alexandria, Alexandria, Egypt; [2]SLK Kliniken, Dept. of Urology, University of Heidelberg, Heilbronn, Germany

Introduction and Objective: We report our two centre experience and outcome with laparoscopic transperitoneal and retroperitoneal upper pole heminephroureterectomy (HNU) in children with renal duplex systems and impaired upper pole function.
Materials and Methods: Laparoscopic HNU was performed in 22 children (15 girls, 7 boys) with a mean age of 5.9 years. Seventeen underwent retroperitoneal and five transperitoneal HNU between 2005 and 2010. Urinary tract infection was the first presenting symptom in all children except one child with urine retention by a large uretrocele. Voiding-cystourethrography (VCUG) and renal scintigraphy showed dual collecting systems in 11 cases on the right side and 11 on the left. The upper pole collecting system was nonfunctioning in all cases. Post-operative US was done at 1 and 3 months with renal scintigraphy at 3 months to check the remaining function of the lower moiety.
Results: Overall, the mean operative time was 152 minutes (144 for retroperitoneal and 160 for transperitoneal). Blood loss was 10-50cc and there were no intra-operative complications. Mean hospitalization and postoperative follow-up were 3.5±1.25 days and 22±9.83 months respectively. Postoperative recovery was uneventful. At 3rd month evaluation after the surgery, renal scintigraphy study revealed no parenchymal loss of the remaining renal moiety in all children.
Conclusions: Laparoscopic upper pole HNU in children can be performed via transperitoneal or retroperitoneal approach. Retroperitoneal laparoscopic upper pole HNU has shorter operative time. No increased risk of complications in any of the approaches. Low morbidity, minimal blood loss, shorter hospital stay and better cosmoses are benefits of the laparoscopic approach.

MP-11.02
Percutaneous Nephrolithotomy in Paediatric Age Group: Single Centre Experience
Bhuiyan N, Tawhid K, Islam M, Bhuiyan Z, Ahmed N, Salahuddin K, Arafat M
Bangladesh Medical College, Dhaka, Bangladesh

Introduction and Objective: Percutaneous Nephrolithotripsy (PCNL) is already an established method of management of renal stone in Bangladesh. Initially the procedure was restricted to adult age group only. Percutaneous Nephrolithotomy is the choice of procedure for management of renal stone in paediatric age group. The objective of this study: to see the efficacy of maximum stone clearance by PCNL in paediatric age group.
Materials and Methods: This was a study in single centre since January 2009 to December 2011. A total of 11 cases of renal stone in paediatric age group were managed by PCNL. The age ranges from 2 years to 7 years, average 4 years. We used pneumatic lithotripters. Nephrostomy tubes and D-J stent were used in 7 cases. In 4 cases only DJ stent were used. Post-operative haematocrit and creatinine was measured routinely.
Results: Total stone clearance was achieved in all cases. The major post-operative complication was urosepsis(n-1), managed conservatively. Total hospital stay was 3 to 5 days; average 3.5 days. Stents were removed after 2 weeks.
Conclusions: PCNL is a suitable procedure for the management of renal stone in paediatric age group. This needs expertise, longer learning curve under supervised training.

MP-11.03
Endoscopic Correction Method of Vesicoureteral Reflux by "LitAr" Material in Children
Dubrovin V[1], Gzhivats S[1], Litvinov S[2]
[1]Republic Clinical Hospital, Yoshkar-Ola, Russia; [2]National Research University, Samara, Russia

Introduction and Objective: The most promising for the correction of vesicoureteral reflux (VUR) in children is using materials that contribute to the formation of its own tissue at the implant site. Purpose of our work: to evaluate the effectiveness of using of "LitAr» material in the treatment of VUR in children.
Materials and Methods: "Litar" is biodegradable cytoactive nanometrical biopolymer-saline composite having a crystal size of 3 ÷ 4 and 44 nm. It causes the formation of the own normal connective tissue at the implant site. Using this material with antireflux mechanism, 45 subureteral injections were made to the children with VUR (I-IVgrade). Endoscopic treatment was carried out according to traditional methods (the «STING» technique) depending on the age of a child and on the grade of VUR and on the length of the intravesical segment of ureter from 1 to 4 ml of the suspensoid material. Treatment monitoring was conducted by laboratory analysis of urine, ultrasound examination on the 2-15-35-40th day, voiding cystourethrography (VCUG) in 3-12-24 months. Biotransformation of the material was controlled by CT scan at 6 months after injection.
Results: In 24 (53%) cases there was clinical recovery according VCUG. In 18 (40%) cases reduction of reflux degree was observed; in 7 (15%) patients, after repeated single injection of the LitAr» material, there was full recovery, 11 (24%) patients within 24-36 months after re-injection needed additional injection of the material. In 3 (6%) cases endoplasty was not effective. These patients (IV grade of VUR) underwent open antireflux surgery. Complications were not observed. During the CT scan in 42 (93%) patients the formation of connective tissue observed at the implant site.
Conclusions: The effectiveness and safety of endoscopic method implantation of the biodegradable cytoactive composite with nanocrystals ("LitAr") in the treatment of VUR in children are presented.

MP-11.04
Predictors of Upper Urinary Tract Stone-Free Rate in Children Undergoing Shock Wave Lithotripsy: A Prospective Study of 117 Children
Abdelaziz Mohamad A, Shahat A
Div. of Pediatric Urology, Assiut University Hospital, Assiut, Egypt

Introduction and Objective: To evaluate our experience with pediatric patients undergoing shock wave lithotripsy (SWL) in the era of minimally invasive therapy for upper tract urolithiasis, to assess the predictors of stone clearance by single-session SWL.
Materials and Methods: We analyzed all pediatric patients who underwent SWL from April 2009 to March 2010. All data were collected in a prospective database. Patients were treated using a Dornier Lithotripter S with ultrasound and fluoroscopic imaging. Subjects were defined as stone-free if imaging within 3 months showed no evidence of stones after SWL monotherapy. Univariate and multivariate

logistic regression analyses were used to determine successful stone clearance by single-session SWL in relation to age and sex of patients, size, location and opacity of the stones, presence of ureteral stents, anomalous kidney, and previous renal surgery.
Results: A total of 117 children (123 renal units) with a median age of 4 years underwent 169 SWL sessions with a median shock count of 2,000 per session. Median stone size was 13 mm (range 8-40 mm). Urolithiasis was multiple in 40 renal units and bilateral in 12 cases. Stone locations were as follows: renal pelvic (48%), caliceal (27%), pelvic and caliceal (21%), and upper ureteral (4%). The presence of anomalous kidneys, previous renal surgery, and ureteral stents were noted in 7%, 16%, and 13% of cases respectively. The stone-free rates were 68.3%, 87.7%, and 96.8% after first, second, and third SWL sessions respectively. Five patients required re-admission, of them 4 required auxiliary procedures. Large stone size was an independent predictor for residual stones/fragments after first SWL session on multivariate analysis (odds ratio 2.9, 95% confidence interval 1.27-6.65, P=0.012). The median stone size for those who had successful stone clearance by single-session SWL was 13 mm, while those who required further SWL session(s) had median initial stone size of 16 mm (P= 0.002).
Conclusions: Pediatric SWL appears to be efficient for upper tract urolithiasis and it is well tolerated. Single SWL session stone-free rate was dependent on stone size with excellent results for upper tract stones of 13 mm or less.

MP-11.05
Application of Continuous Incisional Infusion of Local Anesthetic after Major Pediatric Urological Surgery
Hidas G[1], Lee H[1], Watts B[1], Pribish M[1], Tan E[2], Kain Z[2], **Khoury A**[1]
[1]Dept. of Urology, University of California Irvine, Children Hospital OC, Irvine, USA; [2]Dept. of Anesthesiology & Perioperative Care, University of California Irvine, Irvine, USA

Introduction and Objective: To determine the efficacy of the newly developed locally infused anesthetic, ON-Q pain relief system (Kimberly-Clarke, Georgia), in improving postoperative pain, reducing narcotic requirement, and shortening recovery time after major pediatric urological surgery.
Materials and Methods: A case-control analysis comparing 20 patients undergoing major urological procedures who were treated postoperatively with the ON-Q system was compared to 20 patients treated with current hospital standard of care intravenous and oral analgesics. Pain was assessed in both groups by staff nurses using the Visual Analog Scale (VAS) or the Face, Legs, Activity, Cry, Consolability Scale (FLACC) depending on the child's age. Information regarding analgesic consumption along with recovery parameters such as temperature, start of oral nutrition, and length of hospitalization (LOH) were collected.
Results: The ON-Q group experienced significantly lower ratings of maximal pain on the first postoperative day as compared to the control group (3 vs. 5.2, p=0.03) and a trend toward lower mean of maximal pain score on post operative day two (1.8 vs. 3.5, p=0.055). Systemic intravenous and oral analgesics were significantly lower on the day of surgery and the first postoperative day for the ON-Q group (p=0.014; and p=0.046 respectively). No differences in frequency of fever, start of oral nutrition and LOH were found between study groups.
Conclusions: Continuous incisional infusion of local anesthetic with the ON-Q system is a viable option for postoperative pain management in children undergoing major urological surgeries. This technology significantly decreases the need for systemic analgesic consumption.

MP-11.06
Aerosol Transfer of Bladder Urothelial and Smooth Muscle Cells onto Demucosalized Colonic Segments for Bladder Augmentation In Vivo: Long-Term and Functional Results
Hidas G[1], Lee H[1], Bahoric A[3], Truong H[1], Liu Z[1], Liu S[1], Saharti S[2], Zi X[1], **Khoury A**[1]
[1]Dept. of Urology, University of California Irvine, Children Hospital OC, Irvine, USA; [2]Dept. of Pathology, University of California Irvine, Irvine, USA; [3]Sick Kids Hospital, Toronto, Canada

Introduction and Objective: In order to prevent the absorptive and secretory complication of the intestinal mucosa augmented bladder, we developed a cell transfer technology for rapid coverage of demucosalized colonic segments, with a mixture of autologus cell suspensions of bladder urothelial, bladder smooth muscle cells and fibrin glue, that sprayed over demucosalize colon. In this study we performed long-term and functional evaluation of this technique.
Materials and Methods: Nine swine were divided into 3 groups. Group 1: Control group underwent colocystoplasty, group 2 and 3: underwent colonic demucosalization with aerosol application of fibrin glue with urothelial cells only and urethelial with smooth muscle cells on the colonic segment respectively. Animals were kept for six months. We measure the intestinal segment surface area and performed histology analysis. Absorptive function was assessed by ligating the two ureters and measuring the volume of preinstalled 300ml distilled water for one hour in the bladder. Secretory function was assessed by measuring the total urine sediment after vigorous centrifugation as well as total urine protein content (measured by Lowri protein assay).
Results: The surface area of the augmented segments showed an increase in the control group 1, and stabilization in groups 2 and 3. On hematoxylin and eosin staining all group 1 animals showed normal colonic epithelium of the augment. All animals in groups 2 and 3 showed confluent epithelial covering with no fibrosis or inflammatory changes. There was no evidence of colonic epithelial re-growth in any animal in groups 2 and 3. 10% of distilled water installed in the bladder was absorbed in the control group and non in group 2 and 3. Total urine sediment and protein was significantly higher in the control group compare to group 2 and 3.
Conclusions: This long-term study showed that aerosol transfer of bladder urothelial and smooth muscle cells onto the demucosalized intestinal segment for bladder augmentation is viable technique that offers a histologically normal, confluent urothelium, without colonic mucosa regrowth or sub-mucosal fibrosis. This method reduces the absorptive and secretory complication of incorporation gastrointestinal segment in the urinary system.

MP-11.07
Is the Appearance of the Deflux Mound Predictive of Reflux Resolution?
Hidas G, Soltani T, **Khoury A**
Dept. of Urology, University of California Irvine, Children Hospital OC, Irvine, USA

Introduction and Objective: The results of endoscopic correction of vesicoureteral reflux have improved with the introduction of the double HIT technique. Some have advocated abandoning the postoperative VCUG based on the appearance of the mound and the absence of hydro-distention (HD) at the end of

the procedure. We sought to evaluate the correlation of the appearance of the mound with the outcome based on a three month VCUG.
Materials and Methods: We created an online survey based on eleven primary vesicoureteral reflux cases (15 renal units, six failed and 8 successful procedures) selected randomly from our video library. An online survey questionnaire was emailed to 205 pediatric urology experts. Each survey question contained preoperative VCUG image as well as figures of the ureteral orifice before and after injection. Experts were asked to predict whether they thought that the Deflux mound appearance will be associated with a successful resolution of reflux at a 3 month postoperative VCUG. Percentage of correctly answered questions as well as sensitivity and specificity and predicting values of expert ability to predict outcome were analyzed.
Results: There were 104 Pediatric urologists who responded to the survey. Overall 66.4% of the experts were able to predict the resolution of reflux based on the appearance of the Deflux mound, (66% were able to correctly predict success and 67% correctly predicted failure). Mean outcome predictability per expert was 66% (range 26% to 86%). This test reach a sensitivity of 0.65, specificity of 0.67, positive predicting value of 0.74 and a negative predicting value of 0.57
Conclusions: The appearance of the Deflux mound and the lack of HD at the completion of the procedure is not a reliable predictor of outcome. Based on the above experience, postoperative VCUG is still required to truly determine reflux resolution.

MP-11.08
Cross-Cultural Validated Adaptation of Dysfunctional Voiding Symptom Score (DVSS) to Japanese Language and Cognitive Linguistic Issues
Imamura M[1], Usui T[2], Johnin K[3], Yoshimura K[1], Kanemastu A[4], Ogawa O[1]
[1]Dept. of Urology, Kyoto University, Graduate School of Medicine, Kyoto, Japan; [2]Dept. of English Communication, Otemon Gakuin University, Ibaraki, Japan; [3]Dept. of Urology, Shiga University of Medical Science, Otsu, Japan; [4]Dept. of Urology, Hyogo College of Medicine, Nishinomiya, Japan

Introduction and Objective: In evaluation of pediatric lower urinary tract symptoms (LUTS), validated questionnaire for subjective symptoms of the patients is required. However, it is often unclear whether children understand and respond to a questionnaire correctly. We performed cross-cultural validated adaptation of Dysfunctional Voiding Symptom Score (DVSS, Farhat W et al. J Urol 2000) to Japanese language, and evaluated cognitive linguistic issues through the process.
Materials and Methods: We translated DVSS into two Japanese versions according to a standard validation methodology: translation, synthesis, back-translation, expert review, and pre-testing. One version was written in adult language for parents (pDVSS), and the other was written in child language for children (cDVSS). Pre-testing was done with 5 to15-year-old patients visiting us, with exclusion of spinal cord disorder, severe intelligence disorder, and incomplete writing. A specialist in cognitive linguistics observed the response procedure to DVSS by children and parents as an interviewer. When a child could not understand a question without adding or changing phrases of the question by the parents, it was defined as 'misidentification'.
Results: Pre-testing was done for 32 patients and their parents: 9 cases 5 to 7years old, 11 cases 8 to 10 years old, and 12 cases 11 to 15 years old. Male to female ratio was 19:13. In cDVSS, a similar pattern of misidentification was observed for representation of time or frequency. The actual rate of misidentification was 15.6% in the opening sentence of "over the last month", 41.0% in the question 5, "I only go to the bathroom one or two times each day", and 43.8% in the response choice related with frequency, for example "Less than half the month". We completed the validated translation by amending the issues raised in the pre-testing.
Conclusion: The cross-cultural validated adaptation of DVSS to child and adult Japanese was completed. Since temporal sense is not fully developed in children, caution should be taken for using the terms related with time or frequency in the questionnaires for children.

MP-11.09
Complications of Male Circumcision: Review of 39 Cases
Kazemi Rashed F[1], Naghdi N[1], Badebarin D[2]
[1]Dept. of Urology, Imam Reza Hospital,Tabriz University of Medical Sciences, Tabriz, Iran; [2]Dept. of Pediatric Surgery,Tabriz University of Medical Sciences, Tabriz, Iran

Introduction and Objective: Male circumcision is one of the most common operations performed on infants and children because of religious, cultural and medical reasons. The complication rate of circumcision procedures is from 0% to 16%. Here we describe the findings of 39 cases complications after circumcision that required secondary surgical intervention.
Materials and Methods: The documents of 39 patients with circumcision complications referred to our department in the period of 2 years (2007-2009) were evaluated retrospectively. We excluded patients with inherited bleeding disorders from this study. Complications were divided in two groups: minor and major or severe and life threatening. Bleeding without changing hemoglobin, meatal stenosis, incomplete circumcision, hematoma, phimosis and skin bridge were defined as minor complications. Major and severe complications or with life threatening sequels include severe hemorrhage Hb<7 gr/dl, urinary retention and penile shaft urinoma, circumcision in hypospadias, penile amputation, glans and skin fusion, phimosis and obstructive uropathy Cr>7 mg/dl, urethral fistula, need for re-surgery or plastic surgery.
Results: The mean age of patients was 1 week to 10 years (mean age 24 months). The most common complication in the minor group was hemorrhage seen in 13 cases (33.3%). Other complications in this group were: meatal stenosis in 7 (18.9%), incomplete circumcision in 5 cases (12.8%). We have 10 case of severe complications, 3 of them had life-long sequels: a patient referred with penile amputation without a viable distal part, another patient was a neonate with severe phimosis and increasing Cr to 7mg/dl. From these 39 cases, 28 patients (71.7%) underwent plastibell circumcision whereas 11 patient (28.2%) had classic surgical circumcision. Significantly, in 11 of 13 hemorrhage cases the circumcision was performed using plastibell, while in 2 cases circumcision was performed by classic surgical circumcision. There were 28 patients (71.7%) circumcised by general practitioner, 10 patients (25.6%) were circumcised by traditional circumcisers and one by pediatric surgeon (2.5%).
Conclusions: There is a clear need to improve safety of male circumcision through risk-reduction strategies including improved training for both traditional and medically trained providers for creating this simple procedure in a safe situation.

MP-11.10
Impact of Videourodynamics on Children with Febrile Urinary Tract Infection (f-UTI)
Mitsui T, Moriya K, Tanaka H, Kitta T, Kanno Y, Nonomura K
Dept. of Urology, Hokkaido University Graduate School of Medicine, Sapporo, Japan

Introduction and Objective: We investigated the value of videourodynamics in children with a history of f-UTI.
Materials and Methods: A total of 33 children, who had a history of f-UTI and undertook videourodynamics, were enrolled in the present study. The children, who were >10 years old and had a mechanical obstruction or neurological disorders, were excluded. Gender was 19 boys and 14 girls and median age at f-UTI was 5.5 months old. Regarding videourodynamics, we investigated vesicoureteral reflux (VUR) and urodynamic parameters. Urodynamic parameters included bladder capacity (BC), incidence of detrusor overactivity (DO), intermittent contraction of the urethral sphincter (IC-US) and high voiding pressure (HVP). HVP was defined as >100 cmH_2O in boys and >50 cmH_2O in girls. DMSA scintigraphy was performed at >3 months after f-UTI to investigate renal scarring.
Results: VUR was identified in 15 children (45%). During filling phase, abnormality of BC was identified in 13 children (39%), and DO was seen in 10 (30%). In voiding function, IC-US and HVP were seen in 11 (33%) and 6 (18%), respectively. Focused on 18 children who did not have VUR, abnormality of BC and DO were seen in 8 (44%) and 4 (22%), respectively. Regarding abnormality of voiding function such as IC-US and HVP, around 30% of children were identified. So, LUT dysfunction was identified in 13 children (72%) who did not have VUR, which could be a main reason of f-UTI. DMSA scintigraphy was performed in 27 children and renal scarring was identified in 11 children (41%) and 13 kidneys (24%). Ratio of gender was not different between children with and without renal scarring. However, renal scarring was seen significantly more in children with VUR, especially high grade VUR. So, VUR was a risk factor in renal scarring. Regarding LUT function, although DO was seen slightly more in children with renal scarring, there was no significant difference in urodynamic parameters between children with and without renal scarring.
Conclusions: LUT dysfunction was seen in children with a history of f-UTI. In mechanisms of renal scarring, there was a relation to VUR, but not LUT dysfunction.

MP-11.11
Elucidation of Genomic DNA Structures Distinctive of Patients with 46,XX Testicular DSD Using Genome-Wide Analyses
Mizuno K, Kojima Y, Kurokawa S, Kamisawa H, Imura M, Moritoki Y, Nishio H, Kato T, Hayashi Y, Kohri K
Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan

Introduction and Objective: Although it has been elucidated that several genes are involved in testicular differentiation including the SRY genes, the whole picture remains unclear. While functional analyses of candidate genes have been performed, genome-wide analyses have recently been used as alternative methods to specify regions involved in testicular differentiation. In the present study, we performed genome-wide analysis in patients with 46,XX testicular DSD in order to comprehensively elucidate the mechanisms of testicular differentiation.
Materials and Methods: Whole genomic DNA was extracted from the peripheral blood of 4 patients with 46,XX testicular DSD. All patients were SRY-negative. Genomic DNAs were digested by a restriction enzyme, amplified by PCR after adding specific adaptors, and hybridized to the GeneChip® Human Mapping 250K Array. Compared to normal female data, we detected common regions in 4 patients of (1) loss of heterozygosity (LOH) and (2) copy number variation (CNV) using Genotyping Console Software. This study was approved by the institutional review board.
Results: We allocated the probe number information to GenBank® sequence data and detected the loci of affected genomic DNA regions. (1) LOH was recognized in 19 regions of 11 chromosomes. Twenty-seven genes or vicinity areas were included in the applicable regions. (2) Copy number loss was recognized in 13 regions of 10 chromosomes, and these regions included 55 genes. Copy number gain was detected in 6 regions of 4 chromosomes, which included the upstream region of the SOX3 gene.
Conclusions: The LOH regions did not contain genes associated with testicular differentiation. However, the upstream area of the SOX3 gene was included in the region of copy number gain. Although mice and humans with SOX3 mutations do not show defects in sex determination, it was recently reported that Sox3 overexpression in the bipotential gonad led to complete XX male sex reversal. The area regulating SOX3 expression is presumably located in Xp27.1, which showed copy number gain. Subsequently, high expression of the SOX3 gene led to testicular differentiation despite SRY gene loss. Since this applicable area is not within a coding region, genome-wide analyses were valuable for detecting novel regions associated with testicular differentiation.

MP-11.12
Long-Term Results of Sacral Neuromodulation for Voiding Problems in the Pediatric Population in a Single Center
Neal D[2], Holyoak J[2], Cummings J[1], Malm-Buatsi E[1], McArthur K[1]
[1]University of Missouri, Columbia, USA; [2]University of Oklahoma, Tulsa, USA

Introduction and Objective: Sacral neuromodulation is a useful therapy for many voiding problems. Although our group and others have reported on its use in children with good results, longer term follow-up has not been examined. We report on our extended experience with sacral neuromodulation for a variety of urinary disorders in the pediatric population at our center.
Materials and Methods: The charts of 22 patients under the age of 21 who received an Interstim implant from 2001 through 2011 were reviewed. Demographic data were gathered and the indications for implantation were noted. Patients were grouped according to whether each had successful reduction of his or her symptoms by 50% or had failed as of the time of last followup after implantation.
Results: The indications for were refractory frequency, urgency and/or urge incontinence. Patient age ranged from 6-19 with a mean of 12. There were 9 males and 13 females. Follow-up ranged from 1-89 months with a mean of 26 months. At last follow-up, there were 14 patients (64%) with ongoing relief of their presenting symptoms. This group included 3 patients who were doing well enough that they had requested removal of the device. There was no difference in the age or sex distribution between the successful group and the group that failed. The overall rate of complications requiring intervention was 36%.
Conclusions: Sacral neuromodulation in the pediatric population is a viable alternative for voiding problems refractory to medication and behavioral therapies. The

complication rate is similar to that reported in adults. Some patients will fail with extended follow-up but there may be a small population that will have resolution of their symptoms and possibly require no further treatment. With further study, factors predictive for success may be identified that could allow improved patient selection in this group of patients for this procedure.

MP-11.13
Stenting versus Non-Stenting with Combined Use of Mathieu and Incised Plate Technique for Repair of Distal Hypospadias
Shelbaia A[1], **El Nashar A**[2], Khiry H[1]
[1]Cairo University, Cairo, Egypt; [2]Suez Canal University, Ismailia, Egypt

Introduction and Objective: To evaluate the results and complications after using stenting and non stenting with combined use of Mathieu and incised plate technique for management of distal hypospadias.
Materials and Methods: There were 63 patients with distal penile hypospadias who were operated on using Mathieu technique combined with deep urethral plate incision (Snodgrass technique). Each patient was evaluated according to the site of original urethral opening, original urethral stenosis, the presence and degree of chordee. The operative and postoperative results and complications were reported. Follow-up of patients occurred after one week and after 3 weeks postoperatively. Then, every month for at least one year.
Results: There were 63 patients involved and operated on in this study. At the end of operation, they were divided into two groups: stented and non stented patients. Group 1 was 33 stented patients and group 2 was 30 non stented patients with a mean age 46+16.6 months in group 1 versus 42.8+16.1 months in group 2. Group 1 has no bleeding versus one case in group 2 (p value 0.1). Urinary tract infection reported in two cases in group 1 versus three cases in group 2 (p value 0.4), No retention occurred in both groups and extravasations reported in one case in non stenting group (p value is 0.1). Forcible slippage of stent occurred in one case in group 1 (p value 0.14.).painful micturation, meatal stenosis and urethrocutaneous fistula occurred in 11.2 and one case in group 1 versus 5.5 and three cases in group 2 (p value is 0.009,0.02 and 0.04). No urethral stenosis was reported in both groups of patients.
Conclusions: Combined use of Mathieu and Incised Plate Technique is suitable for distal hypospadius with original meatal stenosis. According to our results we preferred to use the stenting technique to minimize complications of the catheterless technique.

MP-11.14
The Low Trans-scrotal Orchidopexy for Undescended Testes
Takahashi M, Komori M, Senzaki T, Fukawa T, Takemura M, Yamamoto Y, Yamaguchi K, Izaki H, Fukumori T, Kanayama H
Dept. of Urology, The University of Tokushima Graduate School, Tokushima, Japan

Introduction and Objective: We performed low trans-scrotal approach in patients with a palpable undescended testis distal to the external inguinal ring. We retrospectively reviewed our series of this technique to evaluate operative times, success rates and complications.
Materials and Methods: A total of 265 orchidopexy were performed in patients with undescended testes or retractile testes between January 1996 and June 2005. Among them, trans-scrotal orchidopexy was performed in 69 undescended or retractile testes of 45 patients. The operative indication for low trans-scrotal orchidopexy included an undescended testis that lies distal to the external ring and can be pulled down into the scrotum under general anesthesia. Medical charts were retrospectively reviewed to obtain the demographic data, laterality, preoperative position of the testes, and patency of the processus vaginalis. The above data were compared to those of the undescended testis at the similar location managed with the standard inguinal orchidopexy.
Results: Among 69 testes managed by the low trans-scrotal approach, 49 testes were distal to the external inguinal ring and 20 were diagnosed retractile testes preoperatively. All testes that were tried to perform low trans-scrotal approach were successfully fixed in the middle of the scrotum. No patients required conversion to the traditional inguinal incision. Mean operative times of trans-scrotal orchidopexy and those of 107 inguinal orchidopexy for undescended testes at the similar location were 46.1 (25-100) minutes and 66.6 (22-144) minutes respectively, and the former was significantly shorter than the latter. With median follow-up duration of 36.6 (12.1-80.8) months, all testes except one testis (98.3%) are located at the good position of the scrotum with good consistency. Any testis has not become atrophic. There has been no inguinal hernia or hydrocele. One undescended testis was ascended postoperatively, and required inguinal orchidopexy. Any other complication such as wound infection or scrotal hematoma has not been encountered.
Conclusions: Low trans-scrotal orchidopexy seems to be an excellent alternative of the standard inguinal orchidopexy for the undescended testis distal to the external inguinal ring with less operative times, good cosmesis and low complication rate. Important processes of the trans-scrotal orchidopexy might include secure transection of processus vaginalis even in case of fibrous remnant and narrowing of the opening of the dartos fascia.

Moderated Poster Session 12
Urinary Incontinence
Tuesday, October 2
13:15-14:45

MP-12.01
Treatment of Interstitial Cystitis with BTX-A in Japan: The Second Report
Maeda Y[1], Sekiguchi Y[2], Saito N[1], Hashimoto K[1]
[1]Tokyo Women's Medical University, Aoyama Hospital, Tokyo, Japan; [2]Yokohama Motomachi Women's Clinic LUNA, Yokohama, Japan

Introduction and Objective: No specific medicine is available for interstitial cystitis (IC), which is therefore now being treated with hydrodistension plus medication. However, most cases are refractory to this treatment and recur after the treatment. In the field of Urology, botulinum toxin type A (BTX-A) has been reported to be effective for the treatment of IC but is not generally medicated because of its disapproval for health care services provided by health insurance in Japan. We have reported our experience last year. After then we had experiences to treat IC patients with injections of this agent into the urinary bladder wall include the trigone.
Materials and Methods: We injected 100 units of BTX-A (Botox®, Allergan Inc.) into the bladder wall, include the trigone, of 7 women and 2 men with a diagnosis of IC. We evaluated its efficacy by collecting questionnaires before and after the treatment: ICI Questionnaire-Short Form, Overactive Bladder Symptom Score, Interstitial Cystitis Symptom Index and Problem Index, and International Prostate Symptom Score.
Results: Every score was reduced after the treatment compared to before. The difference was statistically significant in ICIQ-SF and ICPI about total scores. Quality of life related to incontinence and symptoms of urinary storage was improved. Although pains were improved, were not statistically significant. It is recommended in recent studies that BTX-A be injected into the trigone of the bladder for IC therapy. We did inject the agent into the trigone, which does not make big difference account for our results.
Conclusions: We injected BTX-A into the bladder wall including the trigone for the treatment of IC, which was improved in symptoms of urinary storage.

MP-12.02
Low Dose Oral Desmopressin in Treatment of Nocturia in Elderly Men
Wang W, Chen S
Urology Dept., Beijing Tongren Hospital, Capital Medical University, Beijing, China

Introduction and Objective: To investigate the efficacy and safety of lowest dose of oral desmopressin in treatment of nocturia in elderly men.
Materials and Methods: There were 60 old men referred to urology clinic of Beijing Tongren Hospital from 2009-2010 for treatment of nocturia included in a randomized controlled study. Patients were randomly divided into 2 groups (30 patients in each group). Care was taken to match the patients of the two groups by age and clinical criteria. They complained of about 2 voids or more per night. Control group (n = 30) received liquid restriction during nighttime and patients of Experimental group (n = 30) received 0.1 mg desmopressin at bed time for 8 weeks. Patients were assessed after 4 and 8 weeks of treatment. All patients were evaluated by nocturia cure rate, mean number of nocturia, mean duration of the first period and sleep quality.
Results: After 4 weeks of treatment with desmopressin, 17 patients (56.7%) had less than 2 voids, 13 patients (43.3%) had ≥2 voids per night ($p < 0.05$). After 8 weeks, 22 patients (73.3%) with desmopressin had less than 2 voids and only 8 patients (26.7%) had more than 2 voids per night ($p < 0.01$). After 8 weeks, mean number of nocturia before and after receiving desmopressin were 2.8 and 1.5 respectively which differed significantly ($p < 0.001$). Mean number of nocturia before and after in control group were 2.6 and 2.4 respectively with no significant difference ($p > 0.05$). The mean duration of the first sleep period increased by 60% (from 2.5 to 4h) in the desmopressin group, compared with an increase of 25% (from 2 to 2.5 h) in the placebo group ($p < 0.05$). There was 83.3% of patients in desmopressin group satisfied with sleep quality compared with only 30% of patients in control group who were satisfied.
Conclusions: Low does oral administration of desmopressin is an effective and well-tolerated treatment for nocturia in elderly men.

MP-12.03
Posterior Tibial Nerve Stimulation (PTNS) for Treatment of Non-Neurogenic Detrusor Overactivity and Chronic Pelvic Pain
Aggamy M, Gomha M, Al Dayel A, Al Mousa R
Dept. of Urology, King Fahad Specialist Hospital Dammam, Dammam, Saudi Arabia

Introduction and Objective: To assess the efficacy of Posterior Tibial Nerve Stimulation (PTNS) in treatment of lower urinary tract filling symptoms (urgency, frequency, urge incontinence) and chronic pelvic pain in patient with Non Neurogenic Detrusor Overactivity and / or chronic pelvic pain unresponsive to medical therapy.
Materials and Methods: It is a prospective single centre study. The study was conducted in the Neurourology unit at King Fahad Specialist Hospital-Dammam, Saudi Arabia. Between March2010 to end of February 2012, a total of 30 patients with Detrusor overactivity (urgency, frequency with/without incontinence) and/or chronic pelvic pain unresponsive to medical therapy underwent PTNS therapy using Urgent PC kits weekly for a total of 12 sessions (30 minutes sessions each). Patients who were considered as success completed another twice/month sessions for three months then once/month sessions for another 6 months (total of 12 months therapy). All patients had baseline investigations (urine analysis, serum Creatinine, Urodynamic study, Renal Ultrasound). Each patient had to fill a voiding diary, quality of life questionnaire and pain scale at the beginning of therapy (week 0) and after completion of the initial therapy (week 12). The analyzed variables included: daytime and nighttime voiding frequency, voiding volume, number of and estimated amount of urine leak episodes and attacks of pelvic pain. These variables were recorded in a data capture forms using SPSS 14 program. Data were retrieved from standard voiding diary (Arabic form) as recommended by ICS guidelines. Our primary objective outcome was at least 50% reduction in one or more variables in addition to patient satisfaction to consider therapy as successful.
Results: All 30 patients completed at least the initial 12 sessions. No one stopped therapy due to side effect or pain related to the treatment. Ten are males and 20 are females (1:2). Age ranged from 19 years to 80 years (mean age 32). Mean voids per day decreased from 11.3 to 7.1 (−37.1%). After treatment, 63% of participants rated themselves as much better or better in term of pelvic pain; more than 68% were completely or somewhat satisfied. Nocturia episodes were

significantly reduced post therapy (mean = −0.70 vs. −0.32 episodes/night; P = .05). There were greater reductions in maximum urgency attacks/day (mean = −0.44 vs. −0.12; P = .02).
Conclusions: This study demonstrates that percutaneous tibial nerve stimulation (PTNS) could be considered as a safe and effective therapy in Non Neurogenic detrusor overactivity and/or chronic pelvic pain patients who failed medical treatment. Cost effectiveness and long term effects need to be evaluated with longer follow-up and higher number of patients to assess the feasibility of considering PTNS therapy as an alternative treatment to medical therapy.

MP-12.04
Sacral Neuromodulation Failures
Chang M, **Gajewski J**
Dept. of Urology, Dalhousie University, Halifax, Canada

Introduction and Objective: Sacral neuromodulation (SNM) is a validated treatment option for refractory voiding dysfunction. It does not work for all patients, and/or there can be complications associated with it that require its removal. There are no studies examining the status of patients who have had a sacral neuromodulator removed. The goal of this study is to examine the current treatment(s) and quality of life of patients who have had a sacral neuromodulator removed. Reasons for device removal and attitudes towards SNM will also be described.
Materials and Methods: Patients treated by sacral neuromodulation in Halifax between the years of 1995-2008 by a single urologist were identified. There were 96 patients who had a sacral neuromodulator placed for refractory voiding dysfunction, and of these, 22 patients subsequently had the device removed. There were no exclusion criteria. Initial contact was made by mail. Reasons for device removal, current treatments, and attitudes toward SNM were assessed by chart review and questionnaire answers. Current quality of life was assessed by the ICIQ-LUTSqol questionnaire.
Results: A 45% participation rate (10 of 22) was achieved. Reasons for device removal were device pain (7), and lack or loss of effect (3). Subsequent treatments are ileocystoplasty (2), urinary diversion with cystectomy (3), oral anticholinergics (4), opioid analgesics (3) or none (2). Average score on the ICIQ-LUTSqol questionnaire was 53 out of 76 (range 22 to 65), with an average bother score of 6.7 out of 10 (range 0-10). When asked if they would consider SNM again, responses were "yes" (5), "maybe" (2), and "no" (3).
Conclusions: Sacral neuromodulation offers a less invasive option for patients with refractory voiding dysfunction. However, patients should be counseled about the possibility for device complications necessitating removal. Many of these patients are subsequently treated by more invasive surgical interventions, yet continue to have a poor quality of life. Many patients would consider trying SNM again.

MP-12.05
International Variation in Artificial Urinary Sphincter Use
Matsushita K[1,2], Chughtai B[1], Maschino A[1], Lee R[1], Sandhu J[1]
[1]Memorial Sloan-Kettering Cancer Center, New York, USA; [2]St. Luke's International Hospital, Tokyo, Japan

Introduction and Objective: The artificial urinary sphincter (AUS) is considered an excellent option for stress urinary incontinence (SUI). We analyzed international trends in AUS use.
Materials and Methods: We conducted a retrospective review of data derived from patient information forms (PIFs) sent to American Medical Systems. There were 86,140 unique cases from March 1975 through December 2008, including all indications (radical prostatectomy, urethral surgery, trauma or radical pelvic surgery, SUI surgery, neurogenic disease, or other unspecified).
Results: AUS use increased worldwide from 1975 (90 procedures) through 2008 (4818 procedures). In 2008, patients with post-prostatectomy incontinence (PPI) accounted for 61% (2907/4751) of AUS use compared to12% (8/66) in 1975. AUS annual implant rates in women were much lower than in men, decreasing from 298 procedures in 1990 to 67 in 2008. AUS implants in the United States for males alone accounted for the majority (62%, 2995/4818) of worldwide AUS use in 2008. Conversely, AUS use has recently started declining in other areas, including South America and Canada. Frequency of AUS surgery varied dramatically from less than 0.01 per 100,000 population in Brazil to 0.99 in the United States.

MP-12.05, Table 1. Annual AUS case volume by regional standardized utilization rate (per 100,000 inhabitants)

	AUS Case Volume per 100,000 Population					
	2005			2008		
	AUS Case Volume	Population in Millions	AUS Case Volume per 100,000	AUS Case Volume	Population in Millions	AUS Case Volume per 100,000
United States	2781	296.5	0.94	3010	304.5	0.99
Canada	173	32.2	0.54	91	33.3	0.27
France	281	60.7	0.46	322	62.0	0.52
Germany	304	82.5	0.37	381	82.2	0.46
United Kingdom	123	60.1	0.20	181	61.3	0.30
Spain	80	43.5	0.18	130	46.5	0.28
Italy	51	58.7	0.09	108	59.9	0.18
Brazil	103	184.2	0.06	2	195.1	<0.01
Australia	5	20.4	0.02	9	21.3	0.04
New Zealand	21	4.1	0.51	11	4.3	0.26
South Africa	35	46.9	0.07	23	48.3	0.05
South Korea	11	48.3	0.02	33	48.6	0.07

The proportion of revisions to initial implants fell to about 50% in 1984 and has remained fairly steady through 2008. Of surgeons performing AUS implants in 2008, case volumes in and outside of the United States were similarly low: 56% in the United States and 52% outside the United States performed only one AUS implant, while 76% in the United States and 73% outside the United States did fewer than three.
Conclusions: AUS use has continued to increase internationally over the study period, especially for PPI. However, AUS use exhibits considerable regional variation, and the majority of surgeons performed very low annual case volumes of implants.

MP-12.06
Male Sling Adjustment: Can the Retrograde Leak Point Pressure Help to Reduce Postoperative Urethral Lesions?
Rutkowski M, Huber E, Hübner W
Dept. of Urology, Clinic Korneuburg, Korneuburg, Austria

Introduction and Objective: Objective was to evaluate the influence of a retrograde leak point pressure (RLPP) measurement during implantation of an adjustable bulborurethal male sling on the postoperative urethral lesion rate.
Materials and Methods: Retrospective analysis of two subgroups of patients who were implanted an adjustable male sling (ARGUS®) between 2005 and 2009 at our department for treatment of a moderate to severe stress urinary incontinence (SUI). We classified the groups as **I:** intraoperative RLPP adjustment of more than 40cm H_2O (n=21) or **II:** intraoperative RLPP adjustment 40cm H_2O or lower (n=59). Both groups where analyzed for **a:** postoperative urethral lesions **b:** differences in the postoperative dry rate and **c:** need for postoperative adjustment. Dry rate was defined with a 20 min pad weight of 0-1g.
Results: Mean Follow up (FU) was 2.6 years for both groups (FU group **I:** 3.2 years, FU group **II:** 2.0 years). The RLPP was adjusted to mean 46.7 cm H2O (range: 41-90 cmH2O) in group **I** and to 34.2 cm H2O (range 20-40cmH2O) in group **II**. Average surgery time was 46 min for both groups (range: 27-105min). Postoperative urethral lesions occurred in both groups: 7 urethral lesions (33.3%) in group I versus 3 lesions (5.1%) in group II. The postoperative 20min Pad Test was decreased from mean 45.4g to 0.6g (median:0g, range 0-4g, dry rate 80,9%) in group **I**, while in group **II** the preoperative pad weight from mean 27.6g could be reduced to a mean of 3.4g (median:0g,range 0-90g, dry rate 84.7%). A similar postoperative adjustment rate was found in both subgroups, but the differences were without statistical significance: A later loosening of the sling was necessary in 9.5% (n=2) at group I versus 11.8% (n=7) in group II; A later sling tightening was needed in 28.2% (n=6) in group I versus 32.2% (n=19) in group II.
Conclusions: The measurement of the RLPP is a feasible tool to objectify urethral pressure increase while sling adjustment in male stress urinary incontinence. There seems to be no influence on later sling adjustments - due this is necessary for functional changing or changing demands of patients – while the rate of postoperative urethral lesions was significant lower if adjustment was done with a RLPP of 40cm H_2O or lower. Lower RLPP interestingly showed no correlation with the dry rate.

MP-12.07
Male Remeex SystemTM (MRS) for the Surgical Treatment of Male Incontinence: 12 Years from the First Case
Sousa A
Monforte Comarcal Hospital, Monforte, Spain

Introduction and Objective: Urinary sphincter has been accepted as the gold standard in the treatment of male incontinence due to its high success rate and long-term follow-up. Different male slings have been used since 25 years ago with promising success rates, especially those which are readjustable in the postoperative period. Original 20 cases of MRS (Neomedic, Ltd) has a mean follow-up of 10 years while our whole group of 68 patients has a mean follow-up of 7.4 years. The aim of this study was to evaluate safety, efficacy and durability of the MRS including how many postoperative adjustments were required to achieve full continence.
Materials and Methods: There were 68 male patients with moderate to severe UI prospectively operated on using an adjustable sling (MRS®). The etiology of incontinence was status post radical prostatectomy in 62 cases, TURP in four cases, and open prostatectomy in two cases. Average follow-up was at 77 months. Long term cure rates and number of adjustments were recorded.
Results: There were 56 patients (all cases excepting those which suffered bladder or urethral punction during sling placement) who were adjusted in the immediate post-op period. All 68 patients required an adjustment between 1 to 6 months after surgery, which was performed under local anesthesia. Mean number of adjustment procedures during the whole follow-up was 4.2. The longest time interval from placement of the MRS to the adjustment was 100 months. A total of 49 patients (72%) were considered continent (pad use 0-1). Fourteen patients (20.6%) showed significant reduction of their pad use (>50%). Five cases (7.4%) remained incontinent. Of these five patients, one suffered a CVA unrelated to the operation but was disqualified for further adjustments; and, four patients were disqualified for further adjustments due to tumor progression. There was one mesh erosion and three varitensor seromas which lead us to retire it but leaving the threads and mesh in place remaining continent. In 19.1% cases, uneventful intraoperative bladder/urethral perforations occurred which required only new passage of the needles. Six mild perineal hematomas were reported and almost all patients reported perineal discomfort or pain which was successfully resolved with oral medications.
Conclusions: Follow-up data of 6.4 years showed a high success rates due to the possibility to adjust the tension of the device, externally, under local anesthesia at any moment from device implant. Postoperative complications were mild and transient.

MP-12.08
Effects of Pilocarpine, a Muscarinic Receptor Agonist, on Contraction of the Urinary Bladder in the Pig and Human
Yamanishi T, Fuse M, Kamai T, Uchiyama T
Dokkyo Medical University, Shimotsuga, Japan

Introduction and Objective: Contraction of urinary bladder is mediated by activation of muscarinic receptors, with M_3-muscarinic receptors predominate. Cholinergic drugs such as bethanechol chloride have been considered to enhance detrusor contractility and promote bladder emptying in patients with underactive bladder. However, the use of cholinergic drugs has not been standardized due to the efficacy and serious side effects. Recently, pilocarpine, a muscarinic receptor agonist has been reported to be effective for the treatment of dryness of eyes or salivation disorders. This study

examines the effects of pilocarpine on contraction of porcine and human urinary bladder (JAMA. 2010; 304: 452-60).
Materials and Methods: Strips of tissues were mounted in 10ml organ baths containing Krebs solution (composition in mM: NaCl 118.4, KCl 4.7, $CaCl_2$ 1.9, $NaHCO_3$ 24.9, $MgSO_4$ 1.15, KH_2PO_4 1.15, glucose 11.7) which was maintained at 37°C and continuously gassed with 95% O_2 and 5%CO_2. The tissues were subjected to a resting tension of 1 g and allowed to equilibrate for 60 minutes. Cumulative concentration-response curves (CRCs) to pilocarpine were obtained, with Krebs solution containing in the presence of darifenacin, 4-DAMP (M_3 selective antagonist), pirenzepine (M_1 selective antagonist), methoctramine (M_2 selective antagonist), or in the presence of vehicle. These muscarinic receptor antagonists were treated for 30 minutes before the addition of pilocarpine.
Results: Pilocarpine induced contractions of smooth muscle of the detrusor in a concentration-dependent manner, with maximum contraction relative to 80 mM KCl of 134.4% and 78%, respectively, and pEC_{50} values of 5.28 and 5.1, respectively, in the pig and human bladder. Darifenacin, 4-DAMP, pirenzepine, and methoctramine caused surmountable antagonism of responses to pilocarpine, with slopes of Schild plot of 1.37±0.20, 0.80±0.54, 1.05±0.30, and 0.91±0.35, respectively in the pig bladder. The rank order of mean pA_2 values was as follows: 4-DAMP (8.79±0.27) = darifenacin (8.73±0.06) > pirenzepine (6.72±0.12) > methoctramine (6.58±0.16).
Darifenacin caused surmountable antagonism of responses to pilocarpine, with slopes of Schild plot of 0.93±0.30 and a pA_2 value of 8.85±0.13 in the human bladder.
Conclusions: Pilocarpine appears to produce contraction of the pig and human bladder through activation of M_3-muscarinic receptor.

MP-12.09
Evolution of Female Stress Urinary Incontinence Treatment
Kronenberg P, Furtado A, Abreu R, Graça B, Lourenço M, Ferreira Coelho M, Ribeiro F, Cardoso P, Varregoso J, Carrasquinho Gomes F
Hospital Prof. Doutor Fernando Fonseca, EPE, Amadora, Portugal

Introduction and Objective: The treatment of female stress urinary incontinence (SUI) has gone through several developments in recent years. The authors decided to assess the evolution of SUI treatment in their hospital.
Materials and Methods: Retrospective data was collected concerning all patients operated for SUI between 1995 and 2010. An inquiry evaluating urinary incontinence complaints, patient satisfaction, including the International Consultation on Incontinence Questionnaire Short Form (ICIQ-SF) was carried out. All data and responses were statistically analyzed.
Results: There were 1104 female patients operated for SUI; 307 patients were contacted constituting our sample. The surgical techniques used were the Burch colpossuspension, the Lapides and the Marschall-Marchetti-Krantz cysthourethropexy (MMK), rectus fascia suburethral sling, Gittes needle colpossuspension, retropubic suburethral sling (TVT-RP) and the transobturator suburethral sling (TVT-O). No patients submitted to rectus fascia suburethral sling could be reached and only two patients of Lapides technique were contacted, undermining any conclusions concerning these two procedures. The mean hospital stay 3 years before and 3 years after the introduction of a new technique shows a reduction from 9.4 days to 3.7 days (-60.0%) once the TVT-RP was introduced in 2000, and from 3.7 to 2.4 days (-36.4%) after the TVT-O was introduced in 2004. The number of treated patients increased sevenfold since 1999, to more than 150 surgeries per year. Significant lower complication rates, lower ICIQ-SF scores and higher leak-free rates were observed for both TVT techniques, in comparison with other older procedures.
Conclusions: Novel techniques such as the TVT-RP and the TVT-O had a significant impact on patients and hospital logistics. They reduced significantly surgical aggressiveness and complication rates, shortened the patients' stay in the hospital, and quickly outnumbered all other procedures for SUI treatment. Subjective patient satisfaction doesn't necessary correlate with ICIQ-SF scores or objective leak-free status independently of the chosen surgical technique.

MP-12.10
Cure Perception and Patient Satisfaction after Transobturator Suburethral Sling (TVT-O)
Kronenberg P, Furtado A, Abreu R, Graça B, Lourenço M, Ferreira Coelho M, Ribeiro F, Cardoso P, Varregoso J, Carrasquinho Gomes F
Hospital Prof. Doutor Fernando Fonseca, EPE, Amadora, Portugal

Introduction and Objective: The aim of this study is the evaluation of the long-term outcome of patients submitted to TVT-O procedures.
Materials and Methods: Retrospective data of TVT-O procedures from 2004 to 2010 was obtained, and an inquiry (Mar-Aug 2011) performed, in which the individual subjective perceived incontinence status (IS), sexual function, patient satisfaction, including the ICIQ-SF questionnaire were assessed and statistically analyzed.
Results: There were 804 TVT-O procedures performed and 225 inquiries (our sample) were made. Currently, 118 (52.5%) patients consider themselves cured, and 74 (32.9%) feel better; 19 (8.4%) and 14 (6.2%) consider their IS to be, respectively, the same or worse than before surgery. Table 1 lists incontinence types before and after surgery cure perception, ICIQ-SF scores and sex

MP-12.09, Table 1.

Surgical technique	Operated patients	Contacted patients	Age at surgery*	Hospital stay*	Complications	ICIQ-SF*	Global improvement	Leak-free	Satisfied patients
Lapides	4	2	54.0±18.4	6.0±1.4	0%	16.5±0.7	100%	0%	100%
Fascial sling	6	-	69.5±6.9	7.3±4.3	-	-	-	-	-
MMK	19	8	54.4±9.7	11.1±5.2	62.5%	6.8±6.3	75.0%	37.5%	100%
Gittes	30	11	55.7±7.9	7.2±1.7	36.4%	8.0±6.1	81.8%	36.4%	90.9%
Burch	43	17	58.2±9.3	10.5±3.5	23.5%	6.5±7.2	76.5%	47.1%	88.2%
TVT-RP	198	44	54.4±10.9	3.3±1.8	15.9%	5.25±6.8	81.8%	56.8%	86.4%
TVT-O	804	225	59.0±11.6	1.6±0.7	8.9%	5.5±7.0	85.3%	56.9%	84.4%

*mean ± S.D.

life changes. UI remains an element in 78.9% of leaking patients. No statistically significant differences were found as to IS, incontinence type or any other variable with increasing years after surgery. Of patients, 84.4% are satisfied, 90.2% recommend the procedure and 90.7% would repeat it, and, surprisingly, so would also 55.3% of patients presently in the same or worse state than before surgery, expecting a better outcome in a future procedure.
Conclusions: Most patients show better continence levels than before surgery and a significant subset of patients still mentions some degree of incontinence, mostly due to UI and MUI. Patients in the SUI group have higher PGI than those in the MI group ($p<0.001$). Perception of sex life improvement is strongly associated with reduction in urine leakage during intercourse ($p<0.001$). Sexual function usually changes for the better, but the opposite, though rare, can't be neglected. The persistence of UI/MI in the MI group and of UI in unhealed patients is statistically extremely significant ($p<0.0001$); previously undiagnosed MI or *de novo* development of UI should be suspected in unhealed patients.

MP-12.10, Table 1.

Characteristics	SUI before surgery (n=152)	MI before surgery(n=73)
ICIQ-SF score*	2.8±5.5	10.2±7.2
Perceived global improvement rate (PGI)	145 (95.4%)	47 (64.4%)
Patients feeling cured/healed	103 (67.8%)	15 (20.6%)
Patients feeling better	42 (27.6%)	32 (43.8%)
Patients feeling the same than before surgery	1 (0.7%)	18 (24.7%)
Patients feeling worse than before surgery	6 (3.9%)	8 (10.9%)
Leak-free patients	110 (72.4%)	18 (24.7%)
Incontinence type after surgery		
Stress Urinary Incontinence (SUI)	18 (11.8%)	2 (2.7%)
Urge Incontinence (UI)	13 (8.6%)	17 (23.3%)
Mixed Incontinence (MI)	11 (7.2%)	34 (46.6%)
Sexually active patients		n=118
Sex life improvement		35 (29.7%)
Improvement in urine leakage during intercourse		54/58 (93.1%)
Increased sexual sensitivity		2 (1.7%)
Reduced sexual sensitivity		9 (7.6%)
Dyspareunia de novo		3 (2.5%)
Sexual inactivity due to dyspareunia de novo		3/225 (1.3%)

*mean ± S.D.

MP-12.11
Treatment of Monosymptomatic Nocturnal Enuresis in Adolescence: Sertraline for Nonresponders to Desmopressin
Mahdavi R, Seyedi A
Dept. of Urology, Imam Reza Hospital, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objective: One of the challenges in the management of Monosymptomatic Nocturnal Enuresis (MNE) especially in adolescents is response failure to medical regimens such as desmopressin. Our study attempts to address the efficacy of sertraline in treatment of adolescent patients with enuresis who have experienced failure to previous desmopressin therapy.
Materials and Methods: There were 25 adolescents (13-18 years) with MNE refractory to desmopressin enrolled consecutively in a prospective study. All patients had more than four wet nights per week. Patients were asked to take 1 oral tablet of sertraline (50mg) at the morning after meal. Follow-up visits were every 6 weeks and the final follow-up visit was 6 months after terminating treatment. Comparisons of the number of wet nights in the pretreatment nocturnal records and during the follow-up visits were used to determine the efficacy of therapy.
Results: A significant reduction in the mean number of wet nights was found ($p<0.05$). The primary efficacy outcome was achieved in 18 of the 25 (72%) patients; twelve patients had full response and six patients had partial response. Four of 25 children (16%) presented with a relapse after 6 months of follow-up. Drug-related adverse events were rare.
Conclusions: In the current series of patients, a significant decrease in the risk of wet episodes was found. Sertraline effectively treated adolescents with MNE who have experienced failure to desmopressin therapy. With respect to favorable efficacy outcome of sertraline and scarce drug-related adverse effects, it can be proposed as a new effective treatment for MNE.

MP-12.12
Alterations in Peripheral Purinergic and Muscarinic Signaling of Rat Bladder After Long-Term Fructose-Induced Metabolic Syndrome
Tan J[1], Chung S[1,2], Chien C[2], Yu H[2,3]
[1]Div. of Urology, Far Eastern Memorial Hospital, Taipei, Taiwan; [2]Graduate Institution of Clinical Medicine, National Taiwan University, Taipei, Taiwan; [3]Dept. of Urology, National Taiwan University Hospital, Taipei, Taiwan

Introduction and Objective: We explored the pathophysiologic mechanisms of long-term fructose-induced lower urinary tract symptoms (LUTS) in rats.
Materials and Methods: Male Wistar rats were fed with fructose for 3 or 6 months. Biochemical and transcytometric parameters were compared between fructose-fed and age-matched normal-diet rats. Pelvic nerve and external urethral sphincter-electromyogram activity recordings were performed to investigate fructose effects on neural control of bladders. Mitochondrial structure, ATP and acetylcholine content and purinergic and muscarinic cholinergic receptors were examined. Cytosolic cytochrome C staining by western blot and immunocytochemistry for mitochondrial injury and PGP 9.5 stain for nerve density were also determined.
Results: The fructose-fed rats with higher plasma triglyceride, LDL, and fasting glucose levels displayed LUTS with increased frequency and suppressed voiding contractile amplitude in phase 1 and phase 2 duration vs. normal diet control. Fructose feeding altered the firing types in pelvic afferent, efferent nerve and external urethral sphincter-electromyogram activity. Increased mast cell number, disrupted and swollen mitochondria, increased cytosolic cytochrome C stain and expression and decreased nerve density in bladder smooth muscle layers appeared in the fructose-fed rats. Fructose feeding

also significantly reduced ATP and acetylcholine content and enhanced protein expression of postsynaptic P2X1, P2X2 and P2X3 purinergic receptors and M2 and M3 muscarinic cholinergic receptors expression in the smooth muscles of urinary bladder.
Conclusions: Long-term fructose feeding induced neuropathy and myopathy in the urinary bladders. Impaired mitochondrial integrity, reduced nerve density, ATP and acetylcholine content and upregulation of purinergic and muscarinic cholinergic receptors expression may contribute to fructose-fed induced bladder dysfunction.

MP-12.13
Usage of Electrical Continuity Testing During Artificial Urinary Sphincter Revision
Liberman D, **Valiquette L**
University of Montreal, Montreal, Canada

Introduction and Objective: Long-term success with the artificial urinary sphincter (AUS) is common but device revision and replacement are often needed. While revision surgeries have shown excellent outcomes, identifying the components to repair or replace is important when performing procedures for mechanical AUS complications. We report our experience using the voltmeter as a tool in isolating individual components of the AUS that need to be repaired or replaced during revision.
Materials and Methods: The medical records of all patients undergoing AUS implantation and revision from a single surgeon were reviewed between 1992 and 2010 from the University of Montreal Health Center. Patient information related to age, history of diabetes, clean intermittent catheterization, overactive bladder or radiotherapy were included in this analysis. Preoperative clinical variables included aetiology of incontinence and date of insult (if applicable). The date of AUS implantation, presence of a urethral wall stent, reason for revision, date of sphincter revision, volume within the reservoir, and type of revision performed were also included in the analysis. Information on the per-operative use of the voltmeter was available for all patients included in this study. Chi square analysis was used to determine significant differences between patients who had the voltmeter used during AUS revision.
Results: There were 144 patients who underwent a 2 incision bulbar urethral AUS implantation between 1986 and 2010. The revision rate was 23%. Primary sphincter revision and secondary revision (>1 revision) were performed in 35 (24.3%) and 25 (17.4%) patients respectively. In our experience the voltmeter was utilized 19 times, 14 times for primary revisions (73.4%), 2 times for secondary revisions (10.5%) and 3 times for tertiary revisions (15.8%). For patients undergoing primary revision, the voltmeter was more likely to be used when patients had a complaint of sudden incontinence as their reason for revision (X^2=0.041), when the volume of the reservoir was low (X^2 =0.001) or when the reservoir or cuff was replaced (X^2=0.007). In our experience during primary and secondary revision, when electrical continuity testing was performed 80% of revisions involved partial explantation and therefore complete device implantation was avoided (X^2=0.032).
Conclusions: The use of the voltmeter is a safe and effective tool that could be used by the surgeon to identify leaks and avoid unnecessary removal of functional components when performing sphincter revision.

MP-12.14
Artificial Urinary Sphincter: Our 20 Year Single Center, Single Surgeon Experience
Liberman D, **Valiquette L**
University of Montreal, Montreal, Canada

Introduction and Objective: The artificial urinary sphincter is considered the gold standard treatment for severe stress urinary incontinence. Long-term success with the artificial urinary sphincter (AUS) is common but device revision and replacement is a reality encountered by the surgeon. We present our long-term data on sphincter revision from a single center, single surgeon experience.
Materials and Methods: The medical records of all patients undergoing AUS implantation by a single surgeon at the University of Montreal Hospital Center were reviewed between 1992 and 2012. Patient information related to age, history of diabetes, clean intermittent catheterization, overactive bladder or radiotherapy were included in this analysis. Urodynamic studies were also obtained and analyzed for the majority of patients. Preoperative clinical variables included aetiology of incontinence. The date of AUS implantation, presence of a urethral wall stent, reason for revision, date of sphincter revision, volume within the reservoir, use of electrical continuity testing (ECT) and type of revision performed were also included in the analysis. Early complications were defined as a revision within 6 months of implantation and late complications were defined as revisions performed after 6 months of sphincter implantation. Chi square analysis was used to determine significant factors that were associated with sphincter revision.
Results: There were 144 patients who underwent a 2 incision bulbar urethral AUS implantation between 1986 and 2010. Primary sphincter revision and secondary revision (>1 revision) were performed in 35 (24.3%) and 25 (17.4%) patients respectively. 8 (23.9%) compared to 25 (71.4%) patients had early and late primary revision respectively. The proportion of patients undergoing early or late revision was statistically significantly related to the clinical indications for revision and the type of procedure performed. Specifically, early revisions were more often performed due to infection and/or erosion (X^2=0.017) and due to difficulty manipulating the pump (X^2=0.009). Within the entire cohort, 4 (2.8%), 9 (6.3%), 29 (20.1%), 34 (23.6%), and 67 (46.5%) patients had their sphincter implantation in 1985-1989, 1990-1994, 1995-2000, 2001-2005, >2005, respectively. Median time to primary revision was 2.83 years. Our analysis showed decreasing trends in revision rates according to year of AUS implantation. Specifically patients treated in the most contemporary year quartile had a lower revision rate (13.4%) than patients treated in the most historical year quartile of 1985-1990 (50%, X^2=0.008).
Conclusions: Managing complications after AUS implantation poses a significant obstacle for the neuro-urologist. Our 20 year experience has revealed important determinants and trends in AUS revision. A large proportion of revisions within the first 6 months of implantation were due to infection and/or erosion. Moreover, early revisions were performed in the context of difficulty with pump manipulation. We report decreasing trends in the proportion of sphincter revision according to year of AUS implantation. These results can be due to increased surgeon experience and increased annual case load as well as technological advancements in the design and construction of the AMS 800.

MP-12.15
The Effect of Cyclic Nucleotides on Carbachol-Induced Calcium Sensitization in Contraction of alpha-Toxin Permeabilized Human and Pig Detrusor Smooth Muscle

Kajioka S[1], Shahab N[2], Hayashi M[1], Takahashi R[1], Naito S[1]
[1]Dept. of Urology, Kyushu University, Fukuoka, Japan; [2]Dept. of Urology, Syarif Hidayatullah State Islamic University, Jakarta, Indonesia

Introduction and Objective: It has been established that Ca^{2+}-dependent and Ca^{2+}-independent mechanisms are involved in smooth muscle contraction. The functional role of the cyclic adenosine monophosphate (cAMP) or the cyclic guanosine monophosphate (cGMP) pathways in the regulation of the detrusor smooth muscle (DSM) contraction through Ca^{2+} independent mechanism was assessed in α -toxin permeabilized human DSM.
Materials and Methods: The DSM specimens were obtained from human urinary bladder who underwent radical cystectomy due to bladder cancer and pig urinary bladder. The small DSM strips (3 - 4 mm in length and 300 - 400 μm in diameter) were permeabilized with 5,000 U/ml α -toxin for 60 minutes and connected to transducer.
Results: At fixed 1 μM $[Ca^{2+}]_i$, both cAMP and cGMP induced relaxation (Ca^{2+} desensitization) and the relaxation effect of 100 μM cAMP was significantly stronger (human 68.1 ± 4.7 %; pig 85.1 ± 3.5 %) compare to that of 100 μM cGMP (human 42.9 ± 6.5 %; pig 56.0 ± 2.3 %; $P < 0.001$; n = 8; Fig. A.1-3). The application of cAMP but not cGMP significantly attenuated the contraction induced by cumulative addition of Ca^{2+} in both detrusor. The relaxation effect of 100 μM cAMP on contraction induced by 1 μM Ca^{2+} was decreased in muscarinic receptor activation by 10 μM CCh plus 100 μM GTP in both tissues. This decrease was recovered by 1 μM AF-DX-116 and was potentiated by 1 μM Y-27632. No effect of 100 μM cAMP on contraction induced by1 μM Ca^{2+} and 1 μM Calyculin A.
Conclusions: This study demonstrated the predominant role of cAMP pathway in relaxation of human DSM contraction through Ca^{2+}-desensitization by activation of myosine light chain phosphatase. The results of this study confirm the link of M_2 receptor subtype with cAMP pathway and suggest the novel interaction between ROK and cAMP pathways. These findings are useful in the treatment strategy for patients with bladder dysfunction. Further, these results also suggest the pig as a good model for the human in properties of cyclic nucleotides induced-relaxation in detrusor smooth muscle.

MP-12.16
The Potent and Selective beta3-adrenoceptor Agonist Mirabegron Improves Patient-Reported Outcomes in the Treatment of Overactive Bladder

Khullar V[1], Amarenco G[2], **Angulo J**[3], Boerrigter P[4], Blauwet M[5], Hakimi Z[6]
[1]St Mary's Hospital, Imperial College, Urogynaecology Department, London, UK; [2]Dept. of Neurologic Rehabilitation, Urodynamic and Neurophysiology Laboratory, Paris, France; [3]Hospital Universitario De Getafe, Department of Urology, Madrid, Spain; [4]Astellas Pharma Global Development EU, Leiderdorp, The Netherlands; [5]Astellas Pharma Global Development, Inc., Biostatistics, Deerfield, USA; [6]Astellas Pharma Europe, Leiderdorp, The Netherlands

Introduction and Objective: Mirabegron is a potent and selective β3-adrenoreceptor agonist for the treatment of overactive bladder (OAB). This analysis from a pivotal Phase III trial in patients with OAB in Europe and Australia reports the effect of mirabegron on patient-reported symptom bother, health-related quality of life (HRQoL) and treatment satisfaction.
Materials and Methods: This multicenter, randomized, double-blind, parallel-group, placebo- and active-controlled trial enrolled patients ≥18 years with symptoms of OAB for ≥3 months to a 2-week, single-blind, placebo run-in. Based on a 3-day micturition diary, patients with ≥8 micturitions/24 h and ≥3 urgency episodes/72 h (with or without incontinence) were randomized to receive placebo, mirabegron 50 or 100 mg, or tolterodine slow release (SR) 4 mg once daily for 12 weeks. The co-primary endpoints were changed from baseline to final visit (study end) in mean number of incontinence episodes and micturitions/24 h. Secondary endpoints included patient-reported outcomes (PROs) as assessed by the Overactive Bladder Questionnaire (OAB-q), Patient Perception of Bladder Condition (PPBC) and Treatment Satisfaction-Visual Analog Scale (TS-VAS).
Results: There were 1978 randomized patients who received study drug (placebo: n=494; mirabegron 50 mg: n=493; mirabegron 100 mg: n=496; tolterodine SR 4 mg: n=495). Mean age was 59.1 years, 72.2% were female, 39.5% had urgency incontinence, 37.8% had frequency without incontinence and 22.7% had mixed stress/urgency incontinence with urgency predominant. At the final visit, both mirabegron groups demonstrated statistically significant improvements in the co-primary endpoints as well as statistically significant improvements in secondary endpoints of PROs compared with placebo (Table).
Conclusions: In addition to improvements in key OAB symptoms, mirabegron (50 and 100 mg) was associated with statistically significant improvements compared with placebo in treatment satisfaction, symptom bother, HRQoL and patients' perception of bladder condition in this 12-week study of patients with OAB.

MP-12.17
Efficacy and Safety of Solifenacin in Male Patients: Results of the Non-Interventional Study "Male Overactive Bladder on Vesicare: MOVE"

Hampel C[1], Burger M[2], Betz D[3], Vogel M[4]
[1]Dept. of Urology, Universtity Medical Center Johannes-Gutenberg University, Mainz, Germany; [2]Dept. of Urology, University Würzburg, Würzburg, Germany; [3]Center of Urology, Ratingen, Germany; [4]Astellas Pharma Germany, Munich, Germany

Introduction and Objective: Solifenacin

MP-12.16, Table 1. Efficacy Results: Adjusted mean *(standard error) for change from baseline at Final Visit

Endpoints	Placebo (n=494)	Mirabegron 50 mg (n=493)	100 mg (n=496)
Co-primary endpoints			
No. incontinence episodes/24 h	–1.17 (0.113)	–1.57† (0.113)	–1.46† (0.115)
No. micturitions/24 h	–1.34 (0.110)	–1.93† (0.111)	–1.77† (0.110)
PRO secondary endpoints			
Treatment satisfaction (TS-VAS)‡	1.89 (0.146)	2.55& (0.149)	2.66& (0.146)
Symptom bother (OAB-q) ≠§	–14.9 (0.84)	–19.6& (0.85)	–19.9& (0.84)
HRQoL total score (OAB-q) ≠‡	13.7 (0.76)	16.1& (0.77)	17.0& (0.77)
PPBC§	–0.8 (0.05)	–1.0& (0.06)	–1.1& (0.05)

*Least squares mean adjusted for baseline, gender and geographical region; †p<0.05 vs placebo; ≠OAB-q subscale minimum important differences range from +5 to +12, denoting improved quality of life (HRQL) and –13 to –25, consistent with a reduction in symptom severity; ‡Positive change indicates improvement; §Negative change indicates improvement.

Note: Tolterodine results not shown

(Vesicare®) improves all symptoms of overactive bladder (OAB) with significant efficacy and safety in randomised controlled trials (RCT). Due to the specific setting RCTs do not necessarily reflect application in a general care setting. This bias is even more evident in male patients, who usually represent a minority in RCTs on anticholinergic drugs. The non-interventional study MOVE assesses efficacy and safety of flexible dose solifenacin in a male population.
Materials and Methods: From 04/2011 to 11/2011, treatment data over 12 weeks of male patients with OAB-symptoms receiving solifenacin treatment were assessed in 251 German urological offices. Patients suspicious for relevant bladder outlet obstruction were excluded from the study. Changes in symptom severity, quality of life and bladder emptying were evaluated by medical history, IUSS, modified KHQ, IPSS and clinical examination, respectively. Adverse events were documented.
Results: A total of 799 patients were assessed. Mean age was 67.4 years. Most compromising symptoms of current voiding disorder were urinary urgency prevalent in 46% followed by increased micturition frequency found in 45%. Previous therapy with alpha-blocking and anticholinergic agents other than solifencin were noted in 61% and 40%, respectively. 87% of patients were started on solifenacin 5mg; by the end of the study (mean treatment duration 13.6 weeks) 24% of patients increased dose to 10mg. Mean number of micturitions, episodes of urinary urgency over 24 hours and nocturia decreased from 11.9 to 8.3, 9.2 to 4.8, and 3.2 to 1.8 from baseline, respectively. IPSS decreased from 15.4 at the initial visit to 9.4 at the final visit, respectively. Differentiating between IPSS questions concerning storage or voiding symptoms, the score decreased from 9.3 to 5.0 for storage and 6.2 to 4.4 for voiding symptoms. Quality of life increased significantly. Serious adverse events did not occur. No increase in residual urine nor urinary retention were reported. There were 95% of patients who continued solifenacin beyond end of study.
Conclusions: This large series demonstrates efficacious and safe treatment of OAB symptoms in male patients with solifenacin 5/10 mg in the general care setting without tendency to developing urinary retention.

MP-12.18
Urinary Stem Cell Factor as a Novel Diagnostic and Therapeutic Biomarker for Overactive Bladder
Shibata Y[1,2], Kubota Y[2], Hamakawa T[2], Imura M[2], Kojima Y[2], Sasaki S[2], Kohri K[2]
[1]Midori Municipal Hospital, Nagoya, Japan; [2]Dept. of Nephro-Urology, Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan

Introduction and Objective: Recent reports have demonstrated that c-kit acts as not only a marker of interstitial cells of Cajal, but also plays a significant role in the control of bladder spontaneous activity, and could be a target for the clinical treatment of overactive bladder (OAB). We previously demonstrated that c-kit ligand, stem cell factor (SCF), was expressed in the urothelium of human bladder and secreted by the urothelium. The objective of this study was to investigate whether SCF could be a potential biomarker for diagnosis and therapeutic efficacy of OAB.
Materials and Methods: One hundred ninety-eight normal healthy volunteers (male:female=98:98) without OAB, lower urinary tract symptoms or other urinary tract-related diseases, were enrolled as a control to determine the reference range of urinary SCF level. In addition, 280 patients with untreated OAB were also enrolled. OAB was diagnosed on the basis of the overactive bladder symptom score (OABSS). Urinalysis was performed to rule out urinary tract infection and microscopic hematuria. Urinary SCF levels were measured by enzyme-linked immunosorbent assay (ELISA). All experiments were carried out in triplicate. The total urinary SCF levels were normalized to the concentration of urinary Cre. The study was approved by the ethics committee of our institution.
Results: The reference range of SCF/Cre was obtained by measuring the values in healthy volunteers. The 95% reference range was calculated as (mean-1.96 SD) to (mean+1.96 SD), and provided that the data were normally distributed. According to this calculation, the normal range of urinary SCF was determined under 3.6x10-4. There was no significant difference in urinary SCF/Cr level between male and female. The average urinary SCF level was significantly higher in OAB patients (12.7±11.9 x10-4) than in the healthy volunteers group (1.7±0.9 x10-4; $p<0.00001$). The urinary SCF level showed a significant positive correlation with OABSS ($r=0.67$, $p=0.001$). It was significantly decreased after 12-week administration of anticholinergic agents ($p<0.05$), and showed a significant positive correlation with improvement of OABSS ($p<0.004$).
Conclusions: The urinary SCF could be a novel diagnostic and therapeutic biomarker for overactive bladder, because it showed significant correlation with severity of OAB and efficacy of anti-cholinergic agents.

MP-12.19
Can Urinary Neurotrophins Be Used to Monitor OAB Symptoms?
Antunes-Lopes T[1,2,3], Pinto R[1,2,3], Barros S[3,4], Botelho F[1,2], Cruz C[3,4], Cruz F[1,2,3], **Silva C**[1,2,3]
[1]Dept. of Urology, Hospital De S. João, Porto, Portugal; [2]Fac. of Medicine, University of Porto, Porto, Portugal; [3]IBMC Institute For Molecular and Cell Biology, University of Porto, Portugal; [4]Dept. of Experimental Biology, Fac. of Medicine, University of Porto, Porto, Portugal

Introduction and Objective: Nerve growth factor (NGF) may constitute a useful biomarker of overactive bladder (OAB). Less is known about brain-derived neurotrophic factor (BDNF). Recently, BDNF was found in high concentration in the urine of OAB patients and appears to be sensitive to lifestyle intervention (LSI). The aim of our study was to assess urinary levels of NGF and BDNF in OAB patients, before and after LSI, followed by antimuscarinic treatment (AMT).
Materials and Methods: Urine samples from 25 female naïve OAB patients were collected at baseline, 3 months (after LSC) and 6 months (after 3-month AMT: oxybutynin chloride ER, 10 mg/d). Urine samples from 20 healthy female controls were also collected. Samples were processed for ELISA analysis of NGF and BDNF. Urinary content of NGF and BDNF was normalized against creatinine concentration. At each time point of evaluation, the bladder condition was assessed using the number of urgency episodes per week (NUE/w).
Results: At baseline, urinary NGF/Cr and BDNF/Cr ratios were significantly higher in OAB patients, compared to controls (NGF/Cr: 485±493 vs 188±290, $p=0.006$; BDNF/Cr: 792±641 vs 110±160, $p<0.001$). Three months after LSC, there was a decrease in urinary NGF (to 320±332, $p>0.05$) and BDNF (to 432±589, $p=0.013$). After 3 months of AMT, NGF had an additional decrease to 180±238, while BDNF had a further reduction to 147±265. At 6 months, after LSC plus AMT, both neurotrophins were significantly lower than at baseline ($p<0.05$). At baseline, the mean NUE/w was 68±9. After 3-month LSC, there was a decrease to 56±9 ($p<0.05$), and, after 3-month AMT, there was a further reduction to 35±14 ($p<0.05$). A significant correlation was only found between BDNF/Cr ratio and NUE/w variations, from baseline to 6 months ($r=0.607$, $p<0.01$). Using ROC analysis, the area under the curve was higher for BDNF (0.88) compared to NGF (0.75). BDNF had better sensitivity (84.0%)

and specificity (89.5%) than NGF (sensitivity of 52.0%, specificity of 78.9%).
Conclusions: Urinary neurotrophins significantly decreased after AMT and may constitute potential biomarkers of OAB, with eventual monitoring interest. This variation was more pronounced for BDNF.

MP-12.20
Imidafenacin Is Effective for OAB Patients with Nocturia and Sleep Disturbance: Evaluation by N-QOL and PSQI
Takeda M[1], Takahashi S[2], Goto M[3], Masumori N[4], Nishizawa O[5], Yoshida M[6]
[1]Dept. of Urology, University of Yamanashi, Kofu, Japan; [2]Dept. of Urology, Nippon University, Oita, Japan; [3]Dept. of Urology, University of Nagoya, Nagoya, Japan; [4]Dept. of Urology, Sapporo Medical University, Sapporo, Japan; [5]Dept. of Urology, Shinshu University, Matsumoto, Japan; [6]Sec. of Urology, Kumamoto Laborers' Hospital, Kumamoto, Japan

Introduction and Objective: Among OAB symptoms, nocturia has the worst effect on QOL. We evaluated the impact of nocturnal polyuria on sleep disorders and QOL in OAB patients with nocturia using the N-QOL questionnaire. We also assessed the efficacy of Imidafenacin (IM), an antimuscarinic, on nocturia and nocturnal QOL in patients with or without nocturnal polyuria.
Materials and Methods: A total of 165 (males 73, females 92; mean age 68.8 years old) Japanese OAB patients who had more than two nocturnal voids per day were enrolled in this study. The design was prospective, single-dose, one arm with 8 weeks active treatment period. All of the patients received an IM oral tablet (0.1mg) twice daily for 8 weeks. Nocturia was assessed using a frequency volume chart (FVC) and the Overactive Bladder Symptom Score (OABSS). Nocturnal polyuria was defined as having a nocturnal polyuria index (NPi) of more than 33% of a 24 hour urine volume. Sleep disorders were assessed using the Pittsburgh Sleep Quality Index (PSQI) and QOL was assessed using the Nocturia Quality of Life questionnaire (N- QOL). For the N-QOL, the change in score was evaluated by calculating the overall score, subscale, the various items, and overall well-being. For statistical analysis, Wilcoxon signed-rank test, ANOVA, and Fisher's exact test were used, and p value <0.05 was considered statistically significant.
Results: During the observation period, nocturia was 3.7±1.4 times according to FVC, and was 2.6±0.5 points (full: 3 points) using OABSS. PSQI was above 5.5 (cutoff value) in 88 subjects (59.9%). The percentage of sleep disorders is higher than the average population (38.0%). After 8 weeks of IM administration, nocturia in FVC decreased significantly from 3.7±1.4 to 2.8±1.2 times ($p<0.001$). Nocturia in OABSS decreased significantly from 2.6±0.5 to 1.8±0.9 points ($p<0.001$). Decreases were seen in PSQI values for sleep disorders ($p<0.001$). Regarding the N-QOL, the overall and subscale (sleep/energy and bother/concern) scores were significantly improved at 4 weeks of administration. There was a correlation between the amount of change in number of nocturnal voids and N-QOL, and the amount of change in PSQI and N-QOL ($r=-0.407$, -0.551, respectively, in both $p<0.001$). The prevalence of nocturnal polyuria was 60 % (90 patients). During the observation period, the number of nocturnal voids in the group with nocturnal polyuria was 4.0±1.3 times, and it was 3.2±1.3 times in the group without nocturnal polyuria. The PSQI values in the groups with and without nocturnal polyuria were 6.6 and 6.7, respectively. The overall N-QOL scores were 65.0 and 65.2, with and without nocturnal polyuria. Nocturnal polyuria did not have any effect on the degree of sleep disturbance, or sleep-related QOL disturbance, or QOL. Interpretation of results: By using the PSQI and N-QOL, we demonstrated that anticholinergic drug therapy for OAB patients with nocturia is strongly correlated with the improvement of sleep disorders and QOL.
Conclusions: Nocturnal polyuria does not have any effect on QOL or sleep disturbance in OAB patients. The effect of IM, anti-muscarinic, is effective in OAB patients complaining nocturia with or without nocturnal polyuria.

MP-12.21
Single-Blind, Placebo Controlled, Randomized Controlled Study of the Efficacy of a High-Frequency Continuous Magnetic Stimulator for Urgency Incontinence
Yamanishi T[1], Homma Y[2], Nishizawa O[3], Yasuda K[4], Yokoyama O[5]
[1]Dokkyo Medical University, Shimotsuga, Japan; [2]Tokyo Graduate School of Medicine, Tokyo, Japan; [3]Shinshu University, Nagano, Japan; [4]Yasuda Urinary Organs Clinic, Chiba, Japan; [5]Fac. of Medical Sciences, University of Fukui, Fukui, Japan

Introduction and Objective: To evaluate the efficacy and safety of a high-frequency continuous magnetic stimulator for urgency incontinence in a multicenter, single-blind, placebo controlled randomized controlled study in 13 institutions.
Materials and Methods: A total of 151 female patients with urgency incontinence were included in the study from January 2009 to July 2010. The 25-minute magnetic stimulation was applied using an armchair type high-frequency continuous magnetic stimulator (SMN-X, Nihon Kohden, Japan) twice a week. The intensiveness of active stimulation was set by the maximum stimulation method at 10 Hz. Sham stimulation was used at 1 Hz in 5-sec "on" - 5-sec "off" pulsing manner. The study period consisted of the baseline period for 1 week, treatment period for 6 weeks, and follow-up period for 6 weeks. The primary endpoint was the frequency of urgency incontinence (number of leaks/week) as recorded in the bladder diary. Secondary endpoints were the number of void and urgency/24hours, mean and maximum voided volume, and the quality of life (QOL) assessment.
Results: Changes from baseline in the number of leaks/week were –13.08±11.00 (mean±standard deviation) in the active group, and –8.68±13.49 in the sham group, showing that the number of leaks/week was significantly reduced in the active group ($P=0.0377$). Changes in the voided volume were 14.03±34.53 in the active group, –4.15±40.60 in the sham group ($P=0.0056$), changes in the number of urgency/24hours were –2.65 in the active group, and –1.53 in the sham group ($P=0.0114$). After the completion of the 12th stimulation, changes from baseline in the number of leaks/week were –13.50±12.06 in the active group, and –10.55±13.06 in the sham group at Week 3 of follow-up, and –14.88±13.05 and –11.64±13.88, respectively, at Week 6 of follow-up. These results indicated that this stimulation therapy was continuously more effective in the active group based on reduction of the number of leaks/week. As for safety, except for expected adverse events including diarrhea and constipation, no patients experienced any device-related adverse event of particular concern.
Conclusions: The magnetic stimulation was effective on urgency incontinence in comparison to sham stimulation in female overactive bladder patients.

Moderated Poster Session 13
BPO/LUTS
Tuesday, October 2
15:15-16:45

MP-13.01
Spices Can Affect Bladder Sensation and Muscle Contractility in Different Ways

Chen C[1], Ho D[1,2,3], Lin W[1], Wu C[1], Huang Y[1], Chang P[2]
[1]Div. of Urology, Dept. of Surgery, Chang Gung Memorial Hospital, Chiayi, Taiwan; [2]Graduate Institute of Clinical Medicine, Chang Gung University, Chiayi, Taiwan; [3]Dept. of Nursing, Chang Gung University of Science and Technology, Chiayi, Taiwan

Introduction and Objective: To investigate the possible effects of spices on overactive bladder (OAB). The relationship between spicy food and OAB is not clear. Epidemiological studies had referred spices as a risk factor of OAB, but there were no animal or clinical research supporting this. We studied the effects of spices on inducing overactive bladder in rats.
Materials and Methods: Three different spices, including benzyl isothiocyanate (BI) and curcumin, were used to induce overactive bladder. Intravesical pressure and intercontraction interval were compared before and after spice instillation. Muscle strips of rat bladder were examined under electric field stimulation. Spices alone, or along with succinylcholine were added in organ chamber to evaluate muscle strips contractility. Masson's trichrome stain, hemotoxylin & eosin, and alcian blue stain were used to evaluate bladder wall in chronic use of spices.
Results: Curcumin is most active spice in bladder function due to its water solubility. It may decrease ICI by 63.5 ± 28.1 % and increase muscle strip contractility by 117.3 ± 2.1%. BI may decrease muscle strip contractility, but failed to demonstrate changes in ICI. Succinylcholine added may counteract with contractility increase by curcumin. The decrease of contractility by BI is not changed by succinylcholine.
Conclusions: We demonstrated for the first time that spices are potentially active in changing bladder function. Though different spices works differently, the major cause may be their water solubility. The mechanisms of spice-induced overactive bladder shall be further investigated.

MP-13.02
The Screening of Housekeeping Genes for Quantitative PCR Studies in Rat Urinary Bladder with or without Obstruction

Du S[1], Zhang Q[1], Chen Z[1], Wu W[1], Kong C[1], Araki I[2], Takeda M[3]
[1]Dept. of Urology, The First Affiliated Hospital, China Medical University, Shenyang, China; [2]Dept. of Urology, Shiga University of Medical Science, Otsu, Japan; [3]Dept. of Urology, University of Yamanashi, Chuo, Japan

Introduction and Objective: Rat bladder outlet obstruction (BOO) model is commonly used for the study of lower urinary tract obstruction and dysfunction. Both the mucosa and muscular layer of bladder play important roles. Quantitative real-time PCR is often used to investigate the regulation of transcription in the urinary bladder. A reliable normalization is crucial for the accurate quantification. In this study, we investigated the expression stability of seven housekeeping genes in the mucosa and muscular layer of rat bladder with or without obstruction.
Materials and Methods: The mucosa and muscular layer were harvested from rat urinary bladder with or without obstruction. The gene expression levels of 7 housekeepers, hypoxanthine guanine phosphoribosyltransferase (HPRT), tyrosine 3-monooxygenase (YWHAZ), succinate dehydrogenase complex (SDHA), TATA box binding protein (TBP), ubiquitin C (UBC), β-actin (ACTB) and glyceraldehyde-3-phospate dehydrogenase (GAPDH) were investigated by using real-time PCR. The data was analyzed using different Visual Basic Applications: geNorm and NormFinder.
Results: In the muscular layer, YWHAZ and HPRT are the two most stably expressed housekeeping genes according to the analysis with geNorm. When using NormFinder, YWHAZ is still the most stable single one. However, because YWHAZ and HPRT show the same tendency in intergroup variation, NormFinder selected TBP and ACTB as the best combination for normalization. In the mucosa, geNorm also selected YWHAZ and HPRT as the best combination, while SDHA is the most stable single housekeeping gene when considering normalization factor value. According to the analysis with NormFinder, SDHA is the most stable single one, too. YWHAZ and HPRT also show the same tendency in intergroup variation. NormFinder selected SDHA and ACTB as the best combination for normalization.
Conclusions: To compare the expression level of target gene in the muscular layer of normal rat bladder with obstructed one, TBP and ACTB are proposed to the best combination for normalization. In the case of mucosa, SDHA and ACTB are recommended to calculate normalization factor. If a single reference gene is to be used, YWHAZ is recommended for muscular layer and SDHA for mucosa. Our results may facilitate the choice of reference genes for expression studies in rat BOO model.

MP-13.03
Effect of Hyaluronic Acid on Urine Nerve Growth Factor in Cyclophosphamide-Induced Cystitis

Ho D[1,2,3], Chen C[1], Chang P[2], Lin W[1], Huang Y[1], Wu C[1]
[1]Div. of Urology, Dept. of Surgery, Chang Gung Memorial Hospital, Chia-Yi, Taiwan; [2]Graduate Institute of Clinical Medicine, Chang Gung University, Gueishan, Taiwan; [3]Dept. of Nursing, Chang Gung University of Science and Technology, Gueishan, Taiwan

Introduction and Objective: The purpose of this study was to investigate how hyaluronic acid (HA), a widely-used intravesical medication, affects nerve growth factor (NGF) production and bladder overactivity in a cyclophosphamide (CYP)-induced cystitis rat model.
Materials and Methods: Female Sprague-Dawley rats received three intermittent intraperitoneal injection of CYP (75 mg/kg) or saline. Before or after CYP injection, HA was given intravesically and urine NGF was checked with creatinine correction. Bladder function was evaluated by cystometrograms under Zoletil anesthesia. Furthermore, the effect of HA was counteracted with hyaluronidase (HYAL). Bladder structural change was compared among groups with trichrome stain.
Results: The intercontraction interval (ICI) significantly decreased in CYP-injected rats in comparison to the saline-injected control. In the CYP-injected groups, bladder HA instillation significantly increased the ICI, but did not change the maximum voiding pressure in comparison to the saline instillation. NGF production significantly increased in CYP-injected rats, but decreased significantly with HA treatment. Treatment of HA before CYP-injection may have a more significant effect. The use of HYAL would eliminate HA effect. Specific staining showed mucosa swelling after CYP treat-

ment. Little HA coating on bladder mucosa could be found in HA treated rats.
Conclusions: The intravesical administration of HA suppressed CYP-induced bladder overactivity and also the urine NGF, which were highly correlated. The effects of HA on micturition reflex may be irrespective of being a mechanical barrier. The present findings raise the possibility that HA could be an effective treatment for CYP-related bladder overactivity through involving NGF signaling.

MP-13.04
The Possible Effect of Desmopressin on Bladder Contractility
Ho D[1,2,3], Chen C[1], Chang P[2], Lin W[1], Huang Y[1], Wu C[1]
[1]Div. of Urology, Dept. of Surgery, Chang Gung Memorial Hospital, Gueishan, Taiwan; [2]Graduate Institute of Clinical Medicine, Chang Gung University, Gueishan, Taiwan; [3]Dept. of Nursing, Chang Gung University of Science and Technology, Gueishan, Taiwan

Introduction and Objective: Pediatric nocturnal enuresis and nocturnal polyuria is often treated with desmopressin. We doubt that decreasing urine amount is the only reason for nocturnal voiding improvements. Therefore a rat model of additional desmopressin was setup to evaluate local effects of desmopressin on bladder
Materials and Methods: Diurnal voiding patterns of rats were monitored with metabolic cages. Desmopressin were given in half of the rats to monitor voiding pattern, cystometrography, and urine/serum biochemistry changes. Aquaporin 1, 2, and 3, along with Rho kinase and Transient receptor potential cation channel subfamily V member 4 (TRPV4) mRNA expression in bladder were evaluated for the effect of desmopressin on bladder. Urine nerve growth factor (NGF) was measured to correlate with bladder function.
Results: Voiding interval was significant different between desmopressin treated rats and control. Detrusor contractility significantly increased after desmopressin treatment, which is demonstrated in cystometrography and bladder muscle strips contractility under electric field stimulation. The overall amount of bladder aquaporin 1, 2, and 3 generally increased in experiment group at the end of the study. There was no difference in Rho kinase mRNA expression and urine NGF between the two, but TRPV4 expression is increased in desmopressin rats.
Conclusions: Desmopressin may help increase bladder contractility and decrease voiding interval, and thus improve bladder voiding efficacy. It may work through increase of aquaporin or TRPV4 expression, but may not be associated with NGF or Rho kinase.

MP-13.05
Effect of Silodosin on Bladder Microcirculation in a Rat Bladder Outlet Obstruction Model: Evaluation Using a Pencil Lens Charge-Coupled Device Microscopy System
Matsuo K, Takai S, Majima T, Yamamoto T, Matsukawa Y, Funahashi Y, Gotoh M
Dept. of Urology, Nagoya University Graduate School of Medicine, Nagoya, Japan

Introduction and Objective: Impaired blood flow in the bladder is thought to be an important cause of detrusor overactivity in patients with benign prostatic hyperplasia (BPH). The effect of α1-adrenoceptor antagonists on impaired bladder blood flow has recently been a focus of investigations. We determined the effect of silodosin, a α1-adrenoceptor antagonist purely selective for the α1A-adrenoceptor subtype, on blood flow in the submucosal capillaries of the bladder (SCB) in a rat bladder outlet obstruction (BOO) model by using a pencil lens charge-coupled device microscopy system (PLCMS).
Materials and Methods: BOO was established in rats by partial ligature of the proximal urethra and was maintained for 2 weeks. An osmotic pump filled with silodosin or saline was inserted under the dorsal skin immediately after the BOO procedure. Silodosin ($0.3\ \mu g \cdot kg^{-1} \cdot hr^{-1}$) or saline (control) was subcutaneously administered via the osmotic pump for 2 weeks. The PLCMS was used to visualize the bladder microcirculation and quantitatively assess blood flow in the SCB by measuring the velocity of the blood flow at the base and dome of the bladder. In this method, the velocity at which the red blood cells travelled through a targeted capillary vessel was measured and represented as velocity of the blood flow. The blood flow in the SCB of sham-operated rats, control BOO rats, and silodosin-treated BOO rats was compared.
Results: The blood flow in the SCB was significantly higher at the base compared to the dome of the bladder. The reduction in blood flow through the SCB at the base and dome of the bladder was more significant in BOO rats than in sham-operated rats. However, after pretreatment with silodosin, the BOO rats showed a significant increase in blood flow through the SCB at the base and dome of the bladder compared to control rats. The PLCMS image showed that the BOO rats had chronic ischemic capillary injury, which was ameliorated by silodosin hydrochloride.
Conclusions: The results of the present study suggest that silodosin protects the SCB from ischemic injury following BOO.

MP-13.06
Study of the Change in Human Prostatic Tissue Made by Dutasteride in Super SCID Mice
Tsujimura A[1], Fukuhara S[1], Kiuchi H[1], Okuda H[1], Yamamoto K[1], Takao T[1], Miyagawa Y[1], Nonomura N[1], Nomura T[2]
[1]Dept. of Urology, Osaka University Graduate School of Medicine, Suita, Japan; [2]Animal Models For Human Diseases, National Institute of Biomedical Innovation, Ibaraki, Japan

Introduction and Objective: Chronological change and other effects of human prostate tissue caused by dutasteride remain marginally elucidated. We investigated the effect of dutasteride on human prostate tissue using transplantation model with the improved severe combined immunodeficient mice (super-SCID mice), in which even normal human tissues are generally well maintained in morphology and function for a long period.
Materials and Methods: In the present study, human prostate tissue obtained by transurethral resection was transplanted into the super SCID mice. After the transplantation, mice were divided into dutasteride group, in which dutasteride was administered every day and the control group without detasteride administration. In the biopsy at 2 months after the transplantation, all tissues were examined by immunohistochemical staining with antibody of prostate specific antigen (PSA), androgen receptor (AR), Ki67 and cyclooxygenase 2 (cox2), as well as TdT-mediated dUTP Nick-End Labeling (TUNEL).
Results: Gross and histological features of human prostate tissues both with and without dutasteride were well maintained in the super-SCID mice for 2 months. PSA and AR were expressed in all tissues of the dutasteride and the control groups. Expression of Ki67 in the dutasteride group was lower in the control group and positive cell number of TUNEL was higher in the dutasteride group than that in the control group. These findings were found both in the epithelial cells and the interstitial cells.

Conversely, expression of cox2 was lower in the dutasteride group than that in the control group.
Conclusions: Normal human prostatic tissues are well maintained in morphology and function for 2 months in the super SCID mice. Inhibitory of cell growth and enhancement of apoptosis by dutasteride are shown in human prostate tissue. In addition, suppression of cox2 production may be considered an early effect of dutasteride on prostate tissue to improve the lower urinary tract symptoms.

MP-13.07
Patients with Urinary Disorders, Evocative of BPH: What Are Their Expectations?
Taieb C[1], Cabanac F[2]
[1]Public Health, Pierre Fabre, Boulogne-Billancourt, France; [2]Medical Dept., Pierre Fabre, Boulogne-Billancourt, France

Introduction and Objective: The individualised expectations of the patient will undoubtedly be one of the major preoccupations in the next few decades to guarantee optimal treatment through compliance.
Materials and Methods: A pragmatic, European cohort (France, Italy, and Portugal) of 420 patients presenting with urinary disorders, evocative of BPH, was followed-up over 6 months. A questionnaire regarding expectations was handed out at the first consultation.
Results: There were 317 patients evaluated. The symptom that 30.7% of patients wished to see improved with the highest priority were "getting up in the night to urinate", then for slightly less than 20%, "sensation of not emptying the bladder after urinating". Amongst the symptoms that patients were the least concerned about were "the effort or force needed to start urinating" for 23% of responders, then "the interruption of the flow of urine" for 16% and the "size and force of the stream of urine". "Getting up in the night" was the principal complaint in all 3 countries (39% in France, 26 and 25% in Italy and Portugal), similarly "the effort or force needed to start urinating" is the symptom that preoccupies the patients the least in France and Italy, the "size and force of the stream *of* urine" preoccupies the Portuguese the least. Nearly 90% of the Italians claimed that they would only be satisfied if they never had to get up in the night again, (35% for the French, 50% for the Portuguese). Overall, 60% of the subjects questioned said that they would be satisfied if they were "markedly" improved.
Conclusions: The expectation of patients in the treatment of BPH is very important, and undoubtedly difficult to satisfy entirely. These results are probably due to the fact that our population was composed of patients that had been diagnosed recently.

MP-13.08
Tamsulosin Reduces Nighttime Urine Production in Benign Prostatic Hyperplasia Patients with Nocturnal Polyuria: A Prospective Open-Label Long-Term Study Using Frequency-Volume Chart
Imura M, Kojima Y, Hamakawa T, Shibata Y, Kubota Y, Sasaki S, Hayashi Y, Kohri K
Dept. of Nephro-Urology, Nagoya City University Graduate School of Medicine, Nagoya, Japan

Introduction and Objective: The effects of tamsulosin treatment on changes in frequency-volume chart (FVC) data, especially nighttime urine production, over time were assessed, and the mechanisms underlying the improvement of nocturia in benign prostatic hyperplasia (BPH) patients with nocturnal polyuria (NP) are discussed.
Materials and Methods: A total of 104 patients with lower urinary tract symptoms secondary to BPH were enrolled. After enrollment in the study, the patients were treated with tamsulosin (0.2 mg) once daily. Visits were scheduled every 4 weeks until week 12 (month 3) after study entry, and then every 12 weeks subsequently. All patients completed the International Prostate Symptom Score (IPSS), quality of life (QOL) index, and 3-day FVC, and underwent uroflowmetry at enrollment and on each visit.
Results: Eighty-two patients (mean age: 70.9 ± 7.1 years) were analyzed for 24 months after treatment. Patients were divided into two groups, NP and nonNP, based on FVC outcome. The IPSS, QOL index, and maximum flow rate improved during the 24-month period after treatment in both groups. Mean daytime urine volume significantly increased in the NP group, but no changes were detected in the nonNP group. Mean nighttime urine frequency significantly decreased in the NP group over a 24-month period, and was associated with a significant decrease in nighttime urine volume that was not found in the nonNP group. Maximum voided volume increased most months after treatment in both groups.
Conclusions: In the present study, the long-term effectiveness of tamsulosin treatment in BPH patients was demonstrated. FVC is a useful tool for the evaluation of patient characteristics to enable the determination of efficient, individualized therapy regimens tailored to the needs of each BPH patient. Our long-term prospective study using FVC demonstrated that tamsulosin could correct disturbances of the circadian regulation of urine production in BPH patients with NP. However, other medical options may be needed to improve nocturia in BPH patients without NP based on the involvement of additional factors associated with bladder dysfunction, nighttime urine production, or sleep disturbances, which may contribute to nocturia.

MP-13.09
Is Early Surgical Intervention Good to the Patients with Benign Prostate Hyperplasia with History of Acute Urinary Retention? A Population-Based Study
Chen J[1], Chang C[2], Yang W[1], Kao Y[2]
[1]Dept. of Urology, National Cheng Kung University Hospital, College of Medicine, Taiwan; [2]Inst. of Clinical Pharmacy, National Cheng Kung University Hospital, College of Medicine, Taiwan

Introduction and Objective: Benign prostate hyperplasia (BPH) patients with acute urinary retention (AUR) history are a special group. This study aims to investigate whether early transurethral resection of prostate (TURP) to this group of patient results in better prognosis.
Materials and Methods: This is a retrospective population-based study. All the data was extracted from Taiwan National Health Insurance Research Database. Men over 50 years old diagnosed with BPH who had AUR history and underwent TURP between 2002 and 2004 were included. The patients were classified into 2 groups- early and late. Patients in early group received TURP less than 1 month after AUR, while in late group longer than 1 month. Patients who had prostate cancer, Parkinsonism, and multiple sclerosis were excluded. Postoperative complications of 2 groups were compared. Crude odds ratio (OR), 95% confidence intervals (CI) and a χ^2 test were used.
Results: There were 2373 patients (71.8%) in early group, while 932 patients (28.2%) in late group. In early group, significant less blood transfusion rate during hospitalization (2.5% vs. 5.2 %, OR: 0.47, 95% CI: 0.32-0.69) was noted. Within fourteen days after TURP, fewer patients in early group, especially age between 50 to 70 year-old, needed to be recatheterized (9.6% vs. 16.3 %, OR:

0.54, 95% CI: 0.37-0.80). The frequency of postoperative urinary tract infection (20% vs. 16.2%, OR: 1.29, 95% CI: 1.06-1.58), and lower urinary tract stricture (6.6% vs. 4.4 %, OR: 1.54, 95% CI: 1.08-2.19) in early group were increased. Both occurred in age elder than 70 year-old. There were no significant differences in sepsis, shock, hematuria, re-surgical intervention of the prostate, second-line antibiotic use, medical expense and hospitalization stay.
Conclusions: There were no significant perioperative complications when the BPH patients with AUR history given early TURP. Early TRUP less than 1 month after AUR episode was associated with lower blood-transfusion and recatheterization risk.

MP-13.10
Association Between History of Acute Urinary Retention and Post-Transurethral Resection of Prostate Complications: A Population-Based Study
Chen J[1], Yang W[1], Kao Y[2], Chang C[2]
[1]Dept. of Urology, National Cheng Kung University Hospital, College of Medicine, Taiwan; [2]Inst. of Clinical Pharmacy, National Cheng Kung University Hospital, College of Medicine, Taiwan

Introduction and Objective: To assess the association between the history of acute urinary retention (AUR) and post-transurethral resection of prostate (TURP) complications.
Materials and Methods: We did a retrospective, national, population-based study using the Taiwan National Health Insurance Research Database. Men over 50 years old diagnosed with benign prostatic hyperplasia (BPH) who had AUR and underwent TURP between January 1, 2002, and December 31, 2004, were included in the AUR group. Those without AUR were included in the non-AUR group. Patients with prostate cancer, Parkinsonism, or multiple sclerosis were excluded. Postoperative complications of 2 groups, including re-Foley catheterization, hematuria, urinary tract infection (UTI), etc., were compared using crude odds ratios (ORs), 95% confidence intervals (CI), and Student's *t* test results. A χ^2 test was used for potential confounding factors, including preoperative urinary tract infection and anticoagulant use. Univariate and multivariable analyses of medical expenses were done.
Results: The AUR group contained 3305 men; the non-AUR group contained 1062. Re-Foley catheterization (13.8%), septicemia (1.1%), and shock (0.3%) were found only in the AUR group. More prevalent UTI (18.9% vs. 15.6%, OR: 1.26, 95% CI: 1.05-1.52), lower urinary tract symptoms (22.8% vs. 16.9%, OR: 1.45, 95% CI: 1.21-1.73), and blood transfusion (3.2% vs. 1.5%, OR: 2.19, 95% CI: 1.29-3.72) in the AUR group. The AUR group was also correlated with higher medical expenses. There were no significant differences in hematuria, lower urinary tract stricture, or re-surgical intervention of the prostate and second-line antibiotic use.
Conclusions: BPH patients in Taiwan with AUR and given TURP were associated with a higher risk of complications and higher medical expenses than those without. A preoperative warning is warranted for these patients before TURP. Early treatment of BPH meant delaying AUR development and a better prognosis.

MP-13.11
Significant Lower Urinary Tract Symptoms Are More Common in Elderly Men with Medical Co-Morbidities in Southwestern Nigeria
Olapade-Olaopa E[1], Gureje O[2], Abiona T[2]
[1]Dept. of Surgery, University College Hospital, Ibadan, Nigeria; [2]Dept. of Psychiatry, University College Hospital, Ibadan, Nigeria

Introduction and Objective: Lower urinary symptoms (LUTS) and medical co-morbidities commonly co-exist in the elderly and each may potentiate the impact of the other on those affected. The prevalence of LUTS and their correlation with medical co-morbidities in elderly men in our locality in Southwestern Nigeria is presently unknown. This study was done to assess the correlation between the presence and impact of significant LUTS and selected medical co-morbidities in men aged 60 years and above in a community in South-Western Nigeria.
Materials and Methods: Two thousand men and women were interviewed using the International Prostate Symptom Score (IPSS) questionnaire. Those with known urinary tract disease or mental illness were excluded. Data was also collected on the presence of hypertension (HTN), diabetes mellitus (DM), cerebrovascular disease (CVD) and arthritis. LUTS were classified as mild/insignificant or moderately-severe/significant. Impairment of health (poor quality of life) due to LUTS was also evaluated using the global QoL score of the IPSS.
Results: Seven hundred and fifteen men (median age, 76 years) were interviewed. Overall, 10% of the men had significant LUTS and 9% had impaired health. The medical co-morbidities affected 12.8% of the participants and 22% of this sub-group had significant LUTS which impaired the health of 13%. Specifically, 8.9% of participant with arthritis had significant LUTS, as compared to 22.7%, 22.4% and 22.1% of those with DM, CVA and HTN. Additionally, LUTS impaired the health of 7.6%, 22.2%, 19.7% AND 16.7% of participants with arthritis, DM, CVA and HTN.
Conclusions: LUTS are more prevalent and more troublesome in elderly men with HTN, DM and CVD than in those with arthritis and those not affected in Southwestern Nigeria.

MP-13.12
Impact of HMG-CoA Reductase Inhibitor (Statin) Use on Serum PSA and Prostate Volume in BPH Patients
Cho Y, Joo K, **Park H**, Kwon C
Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine, Seoul, South Korea

Introduction and Objective: The statins, which are cholesterol-lowering drugs, has increased significantly during the last decade. In this study, we investigate the effect of statins on serum prostate-specific antigen (PSA) levels and prostate volume in Korean men diagnosed as BPH.
Materials and Methods: We analyzed BPH patients in our institution from January 2010 to June 2010 retrospectively. We excluded 46 men who had abnormal serum PSA level (≥ 4ng/ml), history of prostate surgery or who were taking prostate related medication. A total of 200 patients were enrolled in this study and divided into two groups according to the use of statin. We compared age, serum PSA, prostate volume measured by transrectal ultrasonography of prostate, underling diseases between two groups. We also analyzed the correlation between statin use and PV, PSA using multivariate regression analysis including confounding factors such as age, hypertension (HTN), diabetes mellitus (DM), cardiovascular disease (CVD), total cholesterol (TC), and aspirin use.
Results: The mean age, serum PSA, PV were 63.80±6.37 years, 2.49±2.18 ng/mL, 34.15±11.28 cc, respectively. The mean period of statin use in statin group (n=53) was 10.34±3.50 months. The mean serum PSA level showed significant difference between statin group (1.60±1.94 ng/mL) and non-statin group (2.80±2.58 ng/mL) ($p<0.05$). And, PV

also significantly lower in statin group (29.06±7.74 cc) when compared to non-statin group (35.98±14.35 cc) ($p<0.05$). In univariate analysis, age, HTN, DM, CVD, TC, aspirin use were correlated with PSA, PV as well as statin use. In multivariate regression analysis, statin use was shown to have a significant association with lower mean PSA. However, statin use was not independent risk factor of PV, and age was the only independent risk factor in multivariate analysis after adjusting significant covariates (Table).
Conclusions: Statin use was not correlated with PV but showed significantly lower serum PSA in this study. It may be necessary to determine a different PSA cutoff level for patients taking statin medication.

MP-13.12, Table 1.

Table. Independent predictors of serum PSA (≥3ng/mL) and prostate volume (≥30cc) in multiple logistic regression analysis

	PSA			Prostate volume		
	odds ratio	95% C.I	p-value	odds ratio	95% C.I	p-value
statin use	**0.505**	0.278-0.919	**0.004**	2.017	0.848-4.797	0.113
Age (≥65years)	**1.441**	1.303-1.643	**0.035**	**2.129**	1.227-3.694	**0.022**
Hyperlipidemia	1.003	0.992-1.013	0.631	0.997	0.988-1.007	0.568
HTN	1.410	0.545-3.643	0.479	1.351	0.600-3.043	0.468
DM	0.479	0.157-1.459	0.195	0.866	0.337-2.225	0.765
CVD	0.684	0.139-3.373	0.641	0.892	0.250-3.186	0.860
aspirin use	0.997	0.305-3.258	0.996	0.762	0.285-2.040	0.589

PSA: prostate specific antigen, HTN : hypertension, DM : diabetes mellitus, CVD : cardiovascular disease, C.I : confidence interval.

MP-13.13
Assessment of the Efficacy of Combination Therapy with Tamsulosin and Meloxicam for the Management of Lower Urinary Tract Symptoms Suggestive of BPH
Hamidi Madani A, Farzan A, Mokhtari G, Asadolahzade A, Baghani Aval H, Fazel Toulami L, Esmaeili S
Urology Research Center, Guilan University of Medical Sciences, Rasht, Iran

Introduction and Objective: Benign Prostatic Hyperplasia (BPH) is a pathologic process which is the main cause of Lower Urinary Tract Symptoms (LUTS) in elderly men. Alpha-blockers have been used for the treatment of LUTS due to BPH for several years. The coexistence of BPH and inflammation in the prostate and histological evidence of prostate inflammation has been documented by some studies. Cyclooxygenase-2 (COX-2) inhibitors are known anti-inflammatory agents. In this study, we have compared the effectiveness of combination therapy with Tamsulosin (an alpha-blocker agent) and placebo (group I) and Tamsulosin and Meloxicam (a non steroidal anti-inflammatory agent) (group II) in the medical treatment of LUTS due to BPH.
Materials and Methods: In this randomized, prospective, placebo-controlled clinical trial, 44 patients between 50 and 80 years old with LUTS due to BPH, IPSS≥12, 5 ml/s ≤Qmax ≤15 ml/s, prostate volume ≤50^{cc}, no indications for surgical intervention, PSA≤4 ng/ml, PVR≤200ml (measured by ultrasonography), no history of liver disease, no history of bleeding disorders, no history of GIB were randomly allocated into two groups. One group including 22 patients (group I) received "placebo daily and tamsulosin 0.4mg daily" and the other group including 22 patients (group II) received "meloxicam 15 mg once daily and tamsulosin 0.4mg daily". IPSS, Qmax and PVR were assessed in each group before and 3 months after study. Statistical analysis was done by Independent Sample T-Test, Wilcoxon Signed-Ranks Test and Mann-Whitney Test.
Results: There were 44 patients randomly assigned into two groups. Two patients from group II dropped out of study due to drug intolerance (dyspepsia) and one patient from group I did not come back for follow up. Mean age of patients was 65.05±10.44 and 65.25±10.06 in groups I and II, respectively. Mean IPSS was 14.84± 3.41 and 15.15±3.13 before treatment in groups I and II, respectively. Mean IPSS was 10.71±3.46 and 7.95±1.66 after treatment in groups I and II, respectively. Mean PVR was 25.95±28.70 and 24.05±23.27 before treatment in groups I and II, respectively. Mean PVR was 7.95±1.66 and 10.95±12.48 after treatment in groups I and II, respectively. Mean Qmax was 9.05±2.72 and 9.37±3.16 before treatment in groups I and II, respectively. Mean Qmax was 10.82±2.75 and 12.44±3.27 after treatment in groups I and II, respectively. The decrease in IPSS in group II was statistically more than group I. The decrease in PVR in the group II was significantly more than group I. The increase in Qmax was significantly more in group II than group I.
Conclusions: Therapy with meloxicam and tamsulosin for 3 months objectively and subjectively improves LUTS due to BPH. Therefore, it may be considered an effective treatment in patients suffering of LUTS due to BPH.

MP-13.14
Thullium Laser Enucleation of the Prostate in Patients on Anticoagulant or Antiaggregant Therapy
Picozzi S, Casellato S, Bozzini G, Stubinski R, Ratti D, **Carmignani L**
Dept. of Urology, University of Milan, IRCCS Policlinico San Donato, San Donato, Italy

Introduction and Objective: Oral anticoagulation or antiaggregation are considered a strict contraindication to transurethral resection of the prostate (TURP). In recent years, however, safe and effective surgical alternatives such as Thullium laser enucleation of the prostate (ThuLEP) have emerged. We evaluated the safety and efficacy of ThuLEP in patients on anticoagulation or antiaggregation with significant obstructive symptoms secondary to prostatic hypertrophy (BPH) refractory to medical therapy.
Materials and Methods: From September 2011 to February 2012 we reviewed 8 patients with a mean age of 66.8 years who had symptomatic BPH and were on chronic oral anticoagulant or antiaggregant therapy. Mean preoperative prostate size estimated by transrectal ultrasound was 56.4 cc. A total of 2 patients underwent ThuLEP with high dose of low molecular weight heparin and the remaining 6 with antiplatelet therapy. All patients were assessed preoperatively, and 7 and 30 days after surgery.
Results: ThuLEP was performed successfully in all patients. The mean enucleation time was 50.5 min.The patients' preoperative mean hemoglobin concentration was 12.4 g/dl, and on the first postoperative day it was 12.1 g/dl. There were no cardiac complications in either the perioperative or the postoperative period. No patient required reintervention

for hemostatic purposes. No episodes of clot-related acute urinary retention occurred after removal of the bladder catheter.
Conclusions: Despite the high number of complications related to cardiac problems that suspension of these drugs causes, ThuLEP, carried out during anticoagulant or antiaggregant therapy, was feasible and without complications.

MP-13.15
Diagnosis of Bladder-Neck or Prostate Middle Lobe 'Dynamic Bladder Outlet Obstruction' During Voiding
Rosier P
University Medical Centre Utrecht, Utrecht, The Netherlands

Introduction and Objective: Bladder-neck hypertrophy (BNH) and prostate middle lobe enlargement (PML) can cause symptoms of lower urinary tract dysfunction in male patients. However, the pathophysiology of this dysfunction is poorly understood. We present our P/Q-plot observations in patients with BNH and–or noticeable PML enlargement.
Materials and Methods: Patients with 'clinical' evidence of BNH or PML were analysed. Twelve had a 'high' bladder-neck ('BNH'), observed during outpatient cystoscopy. In eleven patients a 'protruding PML' was observed, by cystoscopy and–or by transrectal ultrasound. Standard pressure flow analysis was performed.
Results: Mean IPSS score of this group of male patients (mean 62 year, range 32-71) was 18 points (range 6-36 points) with average 4 (2-6 points) on IPSS bother question. Mean prostate volume was 31 grams (range 20-79 grams). Mean free flowmetry Q_{max} was 16.0 ml/s (range 8-31.7 ml/s) with a volume voided 291 ml (range 135-660) and average postvoid residual 118 ml (0-660). Average urethral resistance parameter URA was 25 cmH_2O and average Schäfer obstruction grade was 2. Only two patients had bladder outlet obstruction according to the current limits (BOO; URA >28 cmH_2O and Schäfer grade >2). Common observation in all these patients was, however, an upward deflection of the pressure flow curve in the second phase of voiding (where, in a typical voiding with BOO, a downward curve is expected). Interpretation of results: the upward curvature of the P/Q plot -second (lower pressure-) phase of voiding indicates that there is a secondary increase in bladder outlet 'resistance' subsequently to Q_{max}. We speculate that the BNH or PML are causing this 'dynamic bladder outlet obstruction' in these patients, however; prospective and systematic comparison to a gold standard to evaluate the sensitivity and the specificity of these observations is needed.'Dynamic bladder outlet obstruction' (in the second phase of the voiding) causes residual urine and symptoms despite good Q_{max} and relatively low grade of BOO (based on $P_{det}atQ_{max}$).
Conclusions: Detailed observation of pressure flow curve can explain pathophysiology of lower urinary tract dysfunction caused by BNH or PML enlargement. BNH and or enlarged PML cause a urodynamic P/Q pattern that is potentially sensitive and specific enough to be applicable in clinical practice.

MP-13.16
Detrusor Contraction Strength in Male Patients before and After Various Grades of Desobstruction.
Rosier P
University Medical Centre Utrecht, Utrecht, The Netherlands

Introduction and Objective: A normal detrusor tends to compensate for the (slowly increasing) grade of bladder outlet obstruction (BOO) in male when BPH develops as is known from earlier publications. How the detrusor voiding contraction or contractility 'responds' to *des*obstruction has never been studied.
Materials and Methods: Urodynamic data of 148 symptomatic male patients that underwent desobstruction with contact laser prostatectomy (n=49), electrovaporisation prostatectomy (n=46) or 'classical' TURP (n=53) in various randomised prospective studies, with a standard post-treatment UDI after 6 months. We included patients with *in*complete or 'partial' desobstruction gave a unique opportunity to study the relation between the grade of desobstruction and the detrusor voiding contraction in a human *in vivo* model.
Results: Modal group reduction of BOO in all patients was 2 (Schafer) classes. Bladder outlet obstruction index (BOOI) reduced from 57 (± 26) to 7 (± 22) (paired t-test p: .000) and urethral resistance factor (URA) diminished from 39 (± 17) cmH_2O to 16 (± 9) cmH_2O (p: .000). Average WF_{max} was on average unchanged: 12.5 Wm^2 before and 11.8 Wm^2 after treatment (p: .145), and significantly correlated (r^2 .419 with p: .000). Interpretation of results: in this group of patients W_{max} was almost identical before and after desobstruction, and without any relation with the grade desobstruction. Void% was improved in most patients (82%) after desobstuction. Patients with a negative delta void% showed a decline of W_{max}. Most of these patients had little (-1 class) or no (0 or +1 class) desobstruction.
Conclusions: What this study adds is that there is on average little change of detrusor voiding contraction ± 6 months after all 'grades of desobstruction'. Improved voiding efficacy is related to the grade of desobstruction and to maintenance of detrusor voiding contraction 'strength'. Urodynamic voiding efficiency improved in the majority of patients most consistently when BOO reduction was ≥2 (Schafer) grades. This study also indicates that incomplete or partial desobstruction of BPH-BOO may be associated with decline of detrusor contraction power and increase of PVR in a proportion of patients.

MP-13.17
Post Radical Prostatectomy Incontinence: 'Treatment Simulating Urodynamic Investigation Technique'
Rosier P
University Medical Centre Utrecht, Utrecht, The Netherlands

Introduction and Objective: Diverse methods have been published for pre-operative urodynamic evaluation of post radical prostatectomy incontinence but standardization is lacking. Cystometry 'until –stress- leakage' misses coexisting lower urinary tract (dys-)function. We designed a standardized urodynamic workup to evaluate the eligibility for surgical therapy: the treatment simulating urodynamic investigation technique (TSUIT).
Materials and Methods: Thirty-nine patients, 66y (53-77) were referred to our tertiary centre and underwent urodynamic testing. We have not focussed on incontinence, but on the storage and emptying capacity by preventing leakage by occlusion of the urethra during cystometry.
Results: With this (TSUIT) we were able to fill until an average capacity of 374 ml (range 150-1000 ml) in these patients (that had usually continuously leaking empty bladders while physically active). There were 42% who had normal bladder storage phase, no detrusor-(over activity) and normal sensation. In 31% storage phase was abnormal because of detrusor over activity and in 27% patients because of reduced compliance. Four patients (7%) had obstructed voiding on pressure flow analysis. Interpretation of results: As a result of our TSUIT diagnosis, concentrating on the situation that is

to be expected after restored sphincteric function, we have observed various filling and voiding abnormalities that we would not have seen trough filling until 'only at' (stress or urge) leakage. We are better aware of detrusor behaviour at larger filling and also could perform pressure flow analysis in all patients. We have better been able to direct our treatment. We have observed that TSUIT is feasible, provides plausible and applicable results and causes no extra discomfort to the patient. We propose to consider TSUIT as a (much demanded) standard for workup of patients with (clinical stress) urinary incontinence after radical prostatectomy. However the real advantage of TSUIT over conventional urodynamic technique can only be demonstrated in a comparative prospective trial where also the outcome is measured.
Conclusions: Treatment simulating urodynamic investigation technique (TSUIT) for patients with incontinence after radical prostatectomy is feasible with no (extra) patient discomfort over standard urodynamic technique. The results of TSUIT-diagnosis are relevant for selection of treatment and anticipation of lower urinary tract function after restored sphincter function. TSUIT can be adopted as a new standard diagnostic strategy for patients with incontinence after radical prostatectomy.

MP-13.18
A Significance of Histological Inflammation of the Prostate on Lower Urinary Tract Symptoms in Patients with Benign Prostatic Hyperplasia
Shim B[1], Lee H[1], Lee S[1], Lee D[1], Park Y[1], Han W[2]
[1]Dept. of Urology, Ewha Women's University Hospital, Seoul, South Korea; [2]Dept. of Pathology, Ewha Women's University Hospital, Seoul, South Korea

Introduction and Objective: We tried to investigate for clinical correlation between inflammatory histological findings of the prostate and lower urinary tract symptoms in the patients with benign prostatic hyperplasia.
Materials and Methods: A total of 274 patients whose prostate-specific antigen (PSA) was higher than 4.0 ng/dl, underwent prostate biopsy. International prostate symptom score questionnaire, uroflowmetry, and transrectal ultrasonography were also performed. Patients were divided into 3 groups and granted points according to the extent of lymphocytic infiltration: 0 point for patients with normal findings; 1 point for patients with lower than 50% of lymphocytic infiltration; 2 points for patients with higher than 50% of lymphocytic infiltration or secretor destruction by neutrophil infiltration findings. We quantified the extent of inflammation by using total prostatitis pathology score and classified 0-5 points, 6-10 points, 11-15 points, higher than 16 points into grade 1-4, respectively.
Results: Of the 274 patients, 71 who diagnosed with prostate cancer from their biopsy were excluded. Of the remaining 203 patients, 106 (52.21%) were classified grade 1, 57 (28.08%) were grade 2, 31 (15.27%) were grade 3, and 9 (4.43%) were grade 4. There were 142 patients (69.96%) in the group with core 2, which means severe inflammation, and 61 patients (30.04%) in the group without core 2. In addition, prostate volume, storage symptoms score and total scores in IPSS and quality of life were significantly higher in the group with core 2.
Conclusions: In our study's results, lower urinary tract symptoms deteriorated as prostatic inflammation became severe.

MP-13.19
Factors Affecting Enforcement of Transfusion in BPH Patients with TURP
Yu J, Sung L, Chung J, Noh C
Dept. of Urology, Sanggye Paik Hospital, Inje University, Seoul, South Korea

Introduction and Objective: Transurethral resection of prostate (TURP) is the standard surgical treatment of symptomatic BPH patients. One of the main complications of TURP is bleeding. There has been much controversy about predictions of whether the patients need blood transfusions. Thus, we studied predictive factors about whether or not they need a blood transfusion after TURP.
Materials and Methods: Between Jan 2009 and Dec 2010, 130 patients had TURP; they were reviewed retrospectively. Patients' preoperative characteristics included age, usage of laser (KTP), history of taking preoperative anticoagulant, preoperative hemoglobin (Hb) levels, prostate-specific antigen (PSA) levels, preoperative prostate size (TRUS), DM, hypertension morbidity status, and operation time. The use of lasers based on the needs of the patients' demands. Patients diagnosed with prostate cancer or had combined surgery (TURP and laser), and preoperative hemoglobin (Hb) less than 10.0 were excluded. For patients taking anticoagulants, depending on the type of medication, surgery was performed after the cessation of anticoagulants.
Results: Out of 130 patients, 27 patients (20.77%) were transfused after TURP. Out of 26 patients, 8 patients (30.77%) were transfused. In univariate analysis, age (P <0.001), prostate-specific antigen (PSA) (P <0.001), preoperative prostate size (TRUS) (P <0.001), and operative time (P <0.001) were investigated significant impact on enforcement of transfusion. On multivariate analysis, preoperative prostate size (TRUS) (OR 1.036, 95% CI (1.012-1.061), P=0.004) and age (OR 1.030, 95% CI (1.030-1.191), P=0.006) were significant independent predictors for the transfusion after TURP. Prostate-specific antigen (PSA) levels, operative time, usage of laser (KTP), and history of taking preoperative anticoagulant were not significant predictors. On ROC curves, ideal cut-off levels for the transfusion after TURP were 52g (sensitivity: 85.2%, specificity: 79.6%) in prostate size, and 70 years old (Sensitivity: 85.2%, specificity: 46.6%) in age.
Conclusions: In BPH patients with prostate size greater than 52g, older than 70 years old, there is a significantly higher rate of transfusion after TUPR. This data could be used for treatment decision and for patients' counseling information prior to surgery.

Moderated Poster Session 14
Prostate Cancer: Detection and Screening
Tuesday, October 2
15:15-16:45

MP-14.01
Trend of Prostate Biopsy for Prostate Cancer in Chinese Men from 2003 to 2011

Na R[1], Jiang H[1], Kim S[2], Wu Y[1], Tong S[1], Zhang L[1], Xu J[1,2], Ding Q[1]
[1]Dept. of Urology, Huashan Hospital, Fudan University, Shanghai, China; [2]Center For Cancer Genomics, Wake Forest University Baptist Medical Center, Winston-Salem, USA

Introduction and Objective: To understand trend of prostate biopsy for prostate cancer (PCa) in Chinese men during the last 10 years after increasing use of PSA tests.
Materials and Methods: All patients who underwent prostate biopsy for PCa at Huashan Hospital, Fudan University, Shanghai, China during 2003-2011 were evaluated. Prostate biopsy was performed using six cores before October 2007 or ten cores thereafter. Demographic and clinical information was collected for each patient, including age, digital rectal examination (DRE), transrectal ultrasound (prostate volume and nodule), total prostate-specific antigen (tPSA) levels and percentage of free PSA (%fPSA) prior to biopsy, and the pathological results. A trend test was used to evaluate the changes of positive prostate biopsy rate over the years. A logistic regression was used to model the predictors of PCa. Area under the receiver operating characteristic curve (AUC) was used to assess predictive performance of models.
Results: The overall positive rate of prostate biopsy for PCa was 47% and the rate decreased significantly over the years from 74% in 2003 to 33% in 2011 (P-trend=0.004). Similar results were found for high-grade PCa (Gleason Score ≥8, P trend=$2.08X10^{-7}$). Age at diagnosis was slightly increased (P-trend=0.04) while %fPSA was significantly decreased (P-trend=$1.11X10^{-5}$). No statistically significant trend of changes was found for tPSA levels (P-trend=0.470), prostate volume (P-trend=0.301), and proportion of positive nodule (P-trend=0.507). The predictive performance of positive prostate biopsy using DRE, tPSA, %fPSA, prostate volume, and nodule was excellent, with AUC of 0.93.
Conclusions: Detection rates of PCa and high-grade PCa among men underwent prostate biopsy in China decreased significantly in the last 10 years, likely due to increasing use of PSA tests. Predictive performance of demographic and clinical variables of PCa was excellent.

MP-14.01, Table 1.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	P-trend	Overall
No. of biopsies	58	85	268	294	180	186	196	175	208	/	1650
PCa (%)	74.	60	50	43	46	39	42	50	33	0.004	47
GS≥8 (%)	---*	50	61	51	46	42	32	40	27	2.08E-07	44
Age of Diagnosis (SD)	71.65 (7.42	72.49 (8.25	71.13 (7.69)	72.95 (7.84)	72.41 (9.2)	72.82 (8.86)	75.69 (7.93)	72.89 (8.64)	74.72 (8.24)	0.040	72.96 (8.30)
tPSA° (SD)	52.67 (3.44)	62.04 (3.07)	48.96 (2.42)	51.76 (2.33)	76.81 (5.22)	47.86 (3.95)	56.5 (4.24)	56.67 (4.13)	42.72 (4.23)	0.470	53.55 (3.54)
%fPSA (SD)	0.15 (0.17)	0.19 (0.21)	0.2 (0.16)	0.2 (0.16)	0.12 (0.08)	0.12 (0.08)	0.12 (0.07)	0.13 (0.07)	0.12 (0.09)	1.11E-05	0.15 (0.13)
Prostate Volume° (SD)	39.37 (1.57)	42.75 (1.62)	43.65 (1.66)	43.35 (1.64)	46.08 (1.63)	41.91 (1.53)	41.27 (1.6)	45.54 (1.64)	41.21 (1.61)	0.301	43.0 (1.62)
Nodule (%)	85.29	76.67	80.18	81.9	86.76	81.82	84.21	80.72	75.58	0.507	81.34

* No Data about Gleason Scores in 2003
° The values are antilogarithmic

MP-14.02
Gleason Score Discrepancies between Needle Biopsies and Radical Prostatectomy Specimens in African Men Divided into Three Prognostic Groups

Janane A, Ould Ismail T, Dakkak Y, Ghadouane M, Ameur A, Abbar M
Dept. of Urology, Military Hospital For Instruction MEDV, Rabat, Morroco

Introduction and Objective: The Gleason score has been shown to offer important information with regard to prognosis and therapy for patients with adenocarcinoma of the prostate gland. In this study, Gleason scores, as determined by 18-gauge core needle biopsies, were compared with both Gleason scores and the pathological staging of corresponding radical prostatectomy specimens.
Materials and Methods: Records of 234 consecutive patients undergoing a radical retro pubic prostatectomy between 2000 and 2010 were reviewed. In total, all our patients were enrolled, all of whom had been diagnosed with adenocarcinoma by transrectal needle biopsies using an 18-gauge automated spring-loaded biopsy gun.
Results: Grading errors were greatest with well-differentiated tumors. The accuracy was 18 (23%) for Gleason scores of 2-4 on needle biopsy. Of the 108 evaluable patients with Gleason scores of 5-7 on needle biopsy, 84 (78%) were graded correctly. All of the Gleason scores of 8-10 on needle biopsy were graded correctly. 54 of 162 patients (33%), with a biopsy Gleason score of < 7 had their cancer upgraded to above 7. Tumors in 18 patients (60%) with both a Gleason score < 7 on the needle biopsy and a Gleason score of 7 for the prostatectomy specimen were confined to the prostate.
Conclusions: The potential for grading errors is greatest with well-differentiated tumors and in patients with a Gleason score of < 7 on the needle biopsy. Predictions using Gleason scores are sufficiently accurate to warrant its use with all needle biopsies, recognizing that the potential

for grading errors is greatest with well-differentiated tumors.

MP-14.03
The Evaluation of Effectiveness in the Lesion Suspicious Biopsies Detected by Ultrasonography and MRI
Inoue S, Honda M, Iwamoto H, Satoh M, Morizane S, Yao A, Hinata N, Isoyama T, Sejima T, Takenaka A
Dept. of Urology, Tottori University School of Medicine, Yonago, Japan

Introduction and Objective: We evaluated the effectiveness of the lesion-suspicious biopsy detected by ultrasonography and magnetic resonance imaging (MRI).
Materials and Methods: A total of 169 consecutive patients with elevated prostate specific antigen (PSA) levels of 4 to 30 ng/ml, without apparent invasion of prostate cancer detected by digital rectal examination (DRE). After caudal anesthesia, we underwent extended transrectal systematic 14-core biopsy of the prostate. Eight cores were obtained at peripheral zone, 4 at transitional zone and 2 at apex. In addition to the systematic biopsies, we added targeted biopsies at cancer-suspected lesions detected by ultrasonography or MRI.
Results: Cancer was histologically confirmed in 67 (39.6%) out of 169 patients with elevated PSA. We performed lesion suspicious biopsies in 130 (76.9%) of the 169 patients, then prostate cancer was histologically confirmed in 54 (41.5%) patients. Among those patients, 30 (56%) were histologically diagnosed with prostate cancer in suspicious lesions. In the remaining 24 (44%), prostate cancer was only detected in systematic areas. On the other hand, prostate cancer was not detected in 76 (58.5%) among lesion suspicious biopsy patients.
Conclusions: In the present study, we diagnosed prostate cancer in only one patient with suspicious lesions. We consider that extended 14 systematic prostate biopsies could cover almost all prostate areas. Therefore the effectiveness of lesion suspicious biopsy should be further discussed with more patient numbers.

MP-14.04
Prediction of Prostate Cancer Tumour Volume
Robinson S, Motiwala H, Karim O, Laniado M
Wexham Park Hospital, Slough, UK

Introduction and Objective: There are many nomograms available to predict tumour volume. How applicable are they to local populations.

Materials and Methods: A retrospective and prospective analysis by univariate linear regression of up to 500 patient characteristics generated individual correlation coefficients.
Results:

Conclusions: Predicting final pathological radical prostatectomy tumour volume is fraught with difficulties using pre operative biopsy characteristics. We found that the parameters were PSA, number of cores involved, digital rectal examination and % involvement of core were best, although each performed poorly with correlation coefficients of around 0.3. Surprisingly bilateral disease (which by definition is at least T2c) performed significantly worse as did Gleason score (there is significant upgrading on final pathology) and age. Inner gland volume and total gland volume were negatively correlated. A nomogram to predict the tumour volume is needed which will take into account the total gland volume, inner gland volume and peripheral gland volume. This will almost certainly improve the predictive power of the biopsy parameters. The clinicians' rectal examination experience is probably also important but we have not been able to prove this yet.

MP-14.05
Is There a Role for Routine Anterior Zone Sampling During Transrectal Ultrasound Guided Saturation Prostate Biopsy?
Pinthus J[1], Cole E[1], Shayegan B[1], Daya D[2], Greenspan M[1], Matsumotto E[1], Patlas M[3]
[1]Dept. of Surgery, Div. of Urology, McMaster University, Hamilton, Canada; [2]Dept. of Pathology, McMaster University, Hamilton, Canada; [3]Dept. of Radiology, McMaster University, Hamilton, Canada

Introduction and Objective: The anterior zone (AZ) of the prostate has been recognized as a sanctuary site for prostate cancer (PC). We examined the diagnostic yield of AZ biopsies as part of a saturation template in patients with elevated PSA levels but with previous negative extended prostate biopsies (group 1), and in surveillance biopsies of PC patients (group 2).
Materials and Methods: A total of 95 patients (66 group 1 and 29 group 2) underwent TRUS-guided saturation biopsy

MP-14.04, Table 1.

	r	r2 proportion of variation explained by regression		n
PSA	0.3454	0.119	12%	494
cores	0.3417	0.116	12%	446
DRE	0.2651	0.07	7%	424
%	0.2483	0.061	6%	398
bi	0.1902	0.036	4%	422
Gleason	0.1535	0.023	2%	482
age	0.1109	0.0122	1%	498
Inner gland volume on TRUS	-0.0727	0.00528	0.50%	141
Total gland volume on TRUS	-0.0419	0.0017	0.20%	303
			approx 45% of cancer tissue is explained by these 9 variables	
significant difference between PSA and other parameters?				
psa and cores P=0.959				
psa and dre P=0.184				
psa and % P=0.115				
psa and bi P=0.012 sig				
psa and Gleason P=0.00137				
psa and age P=0.000093				
psa and TZ P=0.000008				
psa and vol P= 0.00000005				
psa test for equality of these correlation coefficients, chi = 4.04 P= 0.257, ie no difference				
cores				
DRE				
% of core				

under local (n=83) or spinal (n=12) anesthesia: 16 cores were taken from the peripheral zone (PZ), 4-6 cores from the transitional zone (TZ), and 4-8 cores from the AZ. All suspicious ultrasonic areas were targeted to a median of 26 cores. All biopsies were completed by a single urologist and reviewed by a specialized uro-pathologist.

Results: Mean age of the patients was 65 and 63 and mean PSA were 11.4 (95% CI 9.8-13.3) and 7.7(95% CI 5.9-9.9) in groups 1 and 2 respectively. The overall diagnostic yield was 33% (group1) and 93% (group 2). AZ cancers were detected in 18% (group 1) and 38% (group 2) (p=0.018) but were rarely the only site involved (3%). Findings in the AZ changed the risk stratification of the disease in only 4.5% of patients in group 1 and 10% of group 2 (P=0.36). There was an equal incidence of ≥ Gleason 7 disease in the AZ in both groups, however, this was often accompanied by disease of equal grade in the PZ. Isolated TZ cancers were not detected. 28.6% and 25.9% of patients with positive biopsies in groups 1 and 2 met the Epstein Criteria for insignificant PC. Overall 15/29 (52%) of patients in the AS group showed some progression in disease on their surveillance biopsy.

Conclusions: Saturation biopsy is almost always positive in patients undergoing surveillance biopsy and commonly positive in patients with clinical suspicion for PC despite previous negative biopsies. However, the routine addition of TZ and AZ sampling rarely adds to the diagnostic yield, and will seldom change a patient's risk stratification.

MP-14.06

Short Term Outcomes of Prostate Biopsy in Men Tested for Cancer by Prostate Specific Antigen: Prospective Evaluation within ProtecT and ProBE Studies

Lane A[1], Rosario D[2], Metcalfe C[1], Donovan J[1], Neal D[3], Hamdy F[4]

[1]School of Social and Community Medicine, University of Bristol, Bristol, UK; [2]Dept. of Urology, Hallamshire Hospital, Sheffield, UK; [3]Dept. of Oncolgy, Addenbrokes's Hospital, Cambridge, UK; [4]School of Surgical Sciences, University of Oxford, Oxford, UK

Introduction and Objective: The impact and acceptability of transrectal ultrasound guided biopsy (TRUS-Bx) of the prostate has rarely been investigated systematically. We aimed to establish the short term outcomes of TRUS-Bx in asymptomatic men undergoing prostate specific antigen testing.

Materials and Methods: Between February 2006 and May 2009, 1147 men aged between 50-69 years with a PSA result of 3-19.9 ng/ml ng/ml were recruited to the ProBE study (65% of those offered) prior to 10-core TRUS guided prostate biopsies in the ProtecT (Prostate cancer testing and Treatment) trial (ISRCTN 2014129769). Participant questionnaires at 7 and 35 days post-biopsy, measured patient symptoms and acceptability of the procedure. Healthcare resource utilisation was collected by nurses from medical records. Participants were also interviewed to assess men's experiences of the procedure.

Results: Pain was reported by 429/984 (43.6%), fever by 172/985 (17.5%), haematuria by 642/976 (65.8%), haematochezia by 356/967 (36.8%), and haemoejaculate by 605/653 (92.6%) men during the 35 days after biopsy. Fewer men rated these symptoms as a major/moderate problem: 71/977 (7.3%) for pain, 54/981 (5.5%) for fever, 59/958 (6.2%) for haematuria, 24/951 (2.5%) for haematochezia, and 172/646 (26.6%) for haemoejaculate. Immediately after biopsy, 124/1142 (10.9%, 95% confidence interval 9.2 to 12.8) men reported that a further biopsy would be a major or moderate problem: seven days later this had increased to 213/1085 (19.6%, 17.4% to 22.1%). 119 (10.4%, 8.7% to 12.3%) men reported consultation with a healthcare professional (usually their family doctor), most commonly for infective symptoms. Interview data revealed that most men found biopsies unpleasant but tolerable although for a few men they caused significant distress.

Conclusions: Prostate biopsy is generally well tolerated but is associated with significant symptoms in a minority of men and influences attitudes to repeat biopsy and primary care resource use. These findings should inform men who seek PSA testing and assist their physicians during counselling about the potential risks and effect of biopsy.

MP-14.07

Impact of Lower Urinary Tract Symptoms on Prostate Cancer Risk Among T1c Biopsy-Referred Japanese Men with Prostate Specific Antigen <10 Ng/Ml

Ito M[1], Masuda H[1], Kawakami S[1], Fujii Y[2], Koga F[1], Saito K[1], Yamamoto S[2], Yonese J[2], Fukui I[2], Kihara K[1]

[1]Dept. of Urology, Tokyo Medical and Dental University, Tokyo, Japan; [2]Dept. of Urology, Cancer Institute Hospital, Tokyo, Japan

Introduction and Objective: To investigate the association of lower urinary tract symptoms (LUTS) evaluated by international prostate symptom score (IPSS) with prostate cancer (PCa) risk and grade at biopsy.

Materials and Methods: A retrospective analysis was performed on 1467 Japanese men with prostate specific antigen (PSA) <10 ng/mL and unsuspicious digital rectal examination (DRE) undergoing initial extended prostate biopsy. IPSS scores <8 were defined as having no LUTS. The association between LUTS and PCa risk and grade at biopsy was examined using logistic regression. Data were also examined stratified by age (year, < 60, 60–70, and > 70) and prostate volume (PV) (cc, <

MP-14.07, Table 1. Associations of absence of lower urinary tract symptoms with prostate cancer detection and grade among patients undergoing initial extended prostate biopsy

Grade	OR or RR	95% CI	P
PCa (all grades)			
Crude OR	1.85	1.49–2.31	< .0001
Age-adjusted OR	2.11	1.68–2.65	< .0001
Multivariate-adjusted OR†	1.70	1.31–2.20	< .0001
Low-grade			
Crude RR	1.52	1.11–2.08	0.0099
Age-adjusted RR	1.71	1.24–2.37	0.0012
Multinominal-adjusted RR†‡	1.44	1.01–2.06	0.0435
High-grade			
Crude RR	2.08	1.60–2.71	< .0001
Age-adjusted RR	2.38	1.82–3.12	< .0001
Multinominal-adjusted RR†‡	1.86	1.36–2.54	0.0001

OR, odds ratio; RR, relative risk; CI, confidence interval; PCa, prostate cancer

†Adjusted for age, BMI, PSA, free/total PSA ratio, prostate volume, and number of biopsy cores.

‡RRs are vs no cancer.

30, 30–50, and > 50). Cancer grade was classified into low-grade (Gleason score [GS] ≤ 6) and high-grade (GS 7–10).
Results: Of 1467 men, 484 (33.0%) had positive biopsy and 633 (43.1%) were regarded as no LUTS. On multivariate analysis, no LUTS had significant and positive impact on the risk of PCa, both low- and high-grade disease, at biopsy. Despite its significant associations with PCa risk throughout any PV category, no LUTS exhibited higher relative risks with larger PV category. Addition of LUTS status significantly ($P = 0.047$) improved the predictive accuracy of PCa detection by 6.2% in men with PV > 50 cc.
Conclusions: A lack of LUTS is associated with higher risk of PCa in T1c biopsy-referred Japanese men with PSA < 10 ng/mL. This finding might be useful especially in patients with large prostate volumes.

MP-14.07, Table 2. Logistic regression analysis predicting overall prostate cancer at biopsy stratified by prostate volume

Variables			Prostate volume (cc)			
	< 30 (n=564)		30–50 (n=611)	> 50 (n=292)		
	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
Age, year	1.10 (1.08–1.13)	< .0001	1.07 (1.04–1.10)	< .0001	1.01 (0.95–1.07-	0.70
PSA, ng/ml	2.86 (0.78–11.04)	0.11	1.86 (0.38–9.50)	0.45	1.20 (0.068–18.62)	0.84
Free/total PSA ratio	0.45 (0.16–1.27)	0.13	0.13 (0.040–0.42)	0.0006	0.15 (0.009–2.31)	0.18
No. biopsy cores	1.03 (0.98–1.07)	0.25	1.03 (0.99–1.08)	0.18	1.06 (0.98–1.15)	0.18
LUTS						
Yes	Reference		Reference		Reference	
No	1.52 (1.04–2.23)	0.030	1.93 (1.30–2.89)	0.0012	2.54 (1.21–5.25)	0.014
Increment of PA by LUTS (%)	0.9 (70.3–71.2)		1.7 (67.2–66.9)		6.2 (56.8–63.0)	
Mantel-Haenszel test	0.418		0.318		0.047	

CI, confidence interval; LUTS, lower urinary tract symptom; OR, odds ratio; PA, predictive accuracy; PSA, prostate specific antigen

MP-14.08
Optimization of the Ultrasound-Guided Prostate Biopsy
Perez-Carral J[1], Rivas M[1], González I[1], **Gil Ugarteburu R**[2], Benito P[1], Fernandez-Pello S[1], Cuervo F[1]
[1]Hospital De Cabueñes, Gijón, Spain; [2]University Center Jove Hospital Foundation, Gijón, Spain

Introduction and Objective: Various schemes of prostate biopsy have been developed looking for maximum profitability, reaching the highest diagnostic rates with schemes of 10-12 cylinders. One of the most commonly used schemes is Presti's, in which the peripheral zone is sampled at its paramedian and lateral part. The areas most increase the diagnostic yield in successive biopsies are the transition zone and anterior horn. The objective of this study is to determine the diagnostic yield of prostate base and develop an optimal scheme for first prostate biopsy.
Materials and Methods: Prospective study of 696 patients including 445 first biopsies and 251 repeat biopsies. Prostate map was obtained on pathology of the cores obtained at each biopsy. Statistical analysis was performed according to age, PSA, PSA ratio F / T and PSAD.
Results: The 41% of first biopsies were positive. Seventy four (16.6%) biopsies had a single positive core corresponding to 14.6% for prostate lobes. Only 3.6% (16 patients) of prostate base biopsies were clinically relevant, providing diagnosis, changing the side of the tumor or raising Gleason, without influence of PSA, age, ratio L / T and PSAD. 34% of repeat biopsies were positive.4.8% of the transition zone biopsies and 7% of the anterior horn biopsies were clinically relevant.70% of the horn positive cores were clinically relevant.
Conclusions: At first biopsy, sampling of the prostate base is of little diagnostic value, although it is important for surgical planning. Second biopsies in the transition zone do not offer a high return. Tumors diagnosed in this area were not very aggressive, the risk of spread is low and no there is not added risk of positive surgical margins, so their utility was questionable. Second biopsies in the anterior horn provide a moderate diagnostic yield, but high clinical significance and considering that is a place with frequent presence of positive surgical margins, its utility for surgical planning is high. Therefore be assessed for inclusion in the scheme of first biopsy.

MP-14.09
A Systematic Review: Are MR Targeted Biopsies as Efficient as Standard TRUS Biopsies in the Detection of Clinically Significant Prostate Cancer?
Moore C[1,2], Robertson N[1,3], Arsanious N[2], Middleton T[2], Taneja S[4], Villers A[5], Klotz L[6], Emberton M[1,2]
[1]Div. of Surgical & Interventional Science, University College London, London, UK; [2]Dept. of Urology, Croydon University Hospital, London, UK; [3]Dept. of Urology, University College London Hospitals Trust, London, UK; [4]Div. of Urologic Oncology, New York University Langone Medical Center, New York, USA; [5]Dept. of Urology, CHU Lille, University Lille Nord De France, Lille, France; [6]Dept. of Urology, Sunnybrook Health Centre, Toronto, Canada

Introduction and Objective: There is great interest in the use of MRI to define biopsy targets within the prostate. We performed a systematic review to compare the efficiency of MRI targeted biopsy with standard transrectal biopsy, in the detection of clinically significant prostate cancer.
Materials and Methods: The PubMed, EMBASE and Cochrane databases were searched from inception until 3rd December 2011, using the search criteria: 'prostate OR prostate cancer' AND 'magnetic resonance imaging OR MRI', AND 'biopsy OR target'. 4,222 records were retrieved and the abstracts assessed independently by 4 reviewers, with 222 records requiring full review. 50 unique records were identified which compared an MRI-targeted with a standard transrectal approach.
Results: Where MRI was applied to all bi-

opsy-naïve men, 62% (374/599) had MRI abnormalities. When subjected to a targeted biopsy, 66% (248/374) had prostate cancer detected. Both targeted and standard biopsy detected clinically significant cancer in 43% (236 or 237/555 respectively). Missed clinically significant cancers occurred in 13 men using targeted biopsy and 12 using a standard approach. Targeted biopsy was more efficient. One-third fewer men were biopsied, overall. Those that had biopsy required a mean of 3.8 targeted cores, compared to 12 standard cores. In addition, a targeted approach avoided the diagnosis of clinically insignificant cancer in 53/555 (10%) of the presenting population.
Conclusions: MRI guided biopsy detects clinically significant prostate cancer in an equivalent number of men to standard biopsy, using fewer biopsies in fewer men, and a reduction in the diagnosis of clinically insignificant cancer. There is a need for a robust prospective multicentre study of targeted biopsies using contemporary MR imaging.

MP-14.10
Evaluation of Prostate Cancer Diagnosing During Surgical Treatment of Benign Prostatic Hyperplasia: Single-Centre Experience
Kogan M, Iliyash A, Chibichyan M, Shiranov K
Dept. of Urology, Rostov State Medical University, Rostov-On-Don, Russia

Introduction and Objective: Aim of our study was to determine clinical and morphological features of incidental PCa in patients with negative biopsy results and patients with no prostate biopsy prior to surgical treatment of clinical benign prostatic hyperplasia (BPH).
Materials and Methods: A series of 359 patients undergoing surgical treatment of BPH were included in our study. They were divided in 2 Groups: in Group 1, patients had negative biopsy results (n=111(31%)); in Group 2 patients with no indication for biopsy were included (n=248(69%)). PCa was diagnosed in 23 (5.8%) patients: 9 cases were in Group 1 (8.1%) and 14 cases were in Group 2 (5.6%). Groups were divided into subgroups, depending on detection of prostate cancer (1A, 2A) or confirming pathological diagnosis of BPH (1B and 2B).
Results: In Group 1 in prostate cancer patients, age was significantly higher than in patients with BPH (p_1<0.05); in Group 2 age differences wasn't statistically significant. Total PSA level was 11.2±2; 8.4±0.5; 3.1±0.2; 2.3±0.1 in subgroup 1A, 1B, 2A, and 2B, respectively (p_2<0.05), and total/free PSA ratio was 12.2±1.9; 19.4±1.4; 11.7±0.8; 24.4±1.4 in subgroup 1A, 1B, 2A, and 2B, respectively (p_2<0.001). We found significant difference in Group 2 between patients with PCa and BPH; in Group 1 such difference was not statistically significant. There were similar prostate volume and PSA density in both groups. In Group 1 rates of palpated and hypoechogenic lesion were significantly higher in patients with PCa (p_2<0.001). In both groups patients with BPH had less severe voiding dysfunction and better health-related quality of life (1A-5.4±0.2; 1B-4.3±0.1; 2A-4.9±0.2; 2B-4.3±0.1). In Group 1 stage T1a was seen more frequently (67%). In Group 2 the most common stage was T1b (64%). In Group 1 low- and moderate-grade PCa was diagnosed in 44.5% patients and 55.5% patients, respectively. In 21.7 % cases high-grade incidental PCa was determined.
Conclusions: Prevalence of incidental PCa in patients, undergoing surgical treatment of BPH, was 5.8%. Predictive factors of PCa were total PSA level and ratio free/total PSA. In most cases, PCa, which was found after surgery of BPH, had small size and low- or moderate-grade.

MP-14.11
Correlation of Gleason Scores with Diffusion-Weighted Imaging Findings of Prostate Cancer
Ding X[1], Wang J[1], Chen L[1], Jin G[2]
[1]Dept. of Radiology, First Hospital of Jilin University, Changchun, China; [2]Dept. of Nuclear Medicine, First Hospital of Jilin University, Changchun, China

Introduction and Objective: The purpose of our study was to compare the apparent diffusion coefficient (ADC) derived from diffusion-weighted imaging (DWI) of prostate cancer (PCa) patients with three classes of pathological Gleason scores (GS).
Materials and Methods: Patients whose GS met these criteria (GS 3 + 3, GS 3 + 4, and GS 4 + 3) were included in this study. The DWI was performed using b values of 0, 50, and 400 s/mm(2) in 40 patients using an endorectal coil on a 1.5T MRI scanner. The apparent diffusion coefficient (ADC) values were calculated from the DWI data of patients with three different Gleason scores.
Results: In patients with a high-grade Gleason score (4 + 3), the ADC values were lower in the peripheral gland tissue, pathologically determined as tumor compared to low grade (3 + 3 and 3 + 4). The mean and standard deviation of the ADC values for patients with GS 3 + 3, GS 3 + 4, and GS 4 + 3 were 1.12 ± 0.12, 0.98 ± 0.11 and 0.84 ± 0.08 mm(2)/sec. The ADC values were statistically significant (P < 0.05) between the three different scores with a trend of decreasing ADC values with increasing Gleason scores by one-way ANOVA method.
Conclusions: This study shows that the DWI-derived ADC values may help differentiate aggressive from low-grade PCa.

MP-14.12
Characteristics of Prostate Cancers Missed by the Transrectal Biopsy Approach: Analysis of Positive Core Location by Transperineal Biopsy
Uno H[1], Saito A[1], Komeda H[2], Nakano M[3], Deguchi T[3]
[1]Chuno Kosei Hospital, Seki, Japan; [2]Gifu Municipal Hospital, Gifu, Japan; [3]Gifu University, Gifu, Japan

Introduction and Objective: Several studies have reported that transrectal biopsy schemes can miss one-third of cancers. The length of the biopsy needle notch is 17 mm; therefore, undersampling of the anterior prostate in prostates with larger volumes is probable because the biopsy needle cannot reach the anterior prostate. Cancers missed by the transrectal approach were investigated by analyzing the location of positive cores diagnosed by transperineal biopsy.
Materials and Methods: There were 391 men <75 years old who underwent 14- to 18-core transperineal biopsies. PSA values were <20.0 ng/mL. The parasagittal antero-posterior distance of the prostate (a-p length) was measured by transrectal ultrasound. Furthermore, the prostate was divided into four regions: front of the anterior prostate (FA), back of the anterior prostate (BA), front of the posterior prostate (FP), and back of the posterior prostate (BP). If the needle did not reach over the middle of the prostate (a-p length >34 mm), the FA and BA regions could not be sampled. If the needle did not reach over three quarters of the prostate (a-p length >22.7 mm), the FA region could not be sampled.
Results: Prostate cancer was diagnosed in 145 of the 391 patients (37.1%). From the analysis of a-p length and prostate volume in 150 cases, an a-p length of 34 mm corresponded to a prostate volume of 53.6 mL, and an a-p length of 22.7 mm corresponded to a prostate volume of 22.9 mL. In the 130 cases with a prostate volume >53.6 mL, 31 cases were

positive for cancer, and 7 cases of cancer were located in the FA and BA regions. In the 253 cases with a prostate volume between 22.9 mL and 53.6 mL, 110 cases were positive for cancer, and only 9 cases were located in the FA region. Four of these 16 cancer cases in the FA and/or BA with a prostate volume >22.9 mL (length >22.7 mm) had one or two positive cores and a Gleason score ≤6.
Conclusions: The present simulation model revealed that approximately 11% of all cancers were missed with transrectal biopsy. Most of the missed cancers were low-risk.

MP-14.13
Can Urologists Conduct MRI-Guided TRUS Biopsy Targeting?
Simmons L[1], Ramachandran N[2], Kirkham A[2], Moore C[1], Ahmed H[1], Emberton M[1]
[1]Div. of Surgery and Interventional Science, University College London, UK; [2]Dept. of Radiology, University College London Hospitals, London, UK

Introduction and Objective: Prostate mp-MRI can be used to define a target for biopsy. It is uncertain whether specialist radiological skill is needed for implementing such targeting. We evaluated whether urologists could target MRI-defined lesions at TRUS biopsy as with comparable accuracy to radiologists.
Materials and Methods: Men undergoing a primary TRUS biopsy between 10/11/2010-05/09/2011 and who had mp-MRI prior to biopsy were included. Three operators, one urologist and two radiologists with variable prostate MRI expertise performed TRUS biopsies by 'cognitively' deciding where on ultrasound to 'target' a needle based on mp-MRI lesion. Only patients undergoing standard biopsies with additional targeted cores to MRI lesions scoring >/=3/5, or those having limited targeted biopsies only, were analysed. Clinically significant disease was defined as ≥3+4 AND/OR maximum cancer core length ≥4mm.
Results:
Conclusions: It appears feasible for urologists, who have been well trained to interpret prostate mp-MRI images, to perform accurate targeted TRUS biopsies. By utilising high quality MRI reports and 'cognitively' translating MRI information in order to target a lesion during TRUS biopsy, comparable disease detection rates were obtained by the urologist and radiologists, without need for in-bore biopsies or specialist fusion software.

MP-14.14
Validation of Prostate HistoScanning™ in Localization of Prostate Carcinoma: The Indian Experience
Ganpule A, Mishra S, Ganesmoni R, Sabnis R, Desai M
Muljibhai Patel Urological Hospital, Nadiad, India

Introduction and Objective: Prostate HistoScanning™ (PHS), a new ultrasound-based technology which uses computer-aided analysis to quantify tissue disorganization induced by malignant processes, can identify and characterize foci of prostate cancer as compared with step-sectioned radical prostatectomy (RP) specimens. This study was done to determine the extent to which PHS can identify tumor foci that correspond to a volume of ≥ 0.50 mL.
Materials and Methods: Between October 2011 and February 2012, 16 men underwent HistoScanning™ before scheduled radical prostatectomy. The three dimensional raw (grey-scaled) data required for HistoScanning™ analysis were acquired by transrectal ultrasonography, and analyzed using organ-specific tissue-characterization algorithms. The HistoScanning™ analysis results were compared with the histology of the whole mounted prostate, step-sectioned coronally at 5-mm intervals, and each slide analyzed by grid analysis.
Results: A total of 96 sextants were studied in 16 patients. The prostate size and the PHS identified lesion size were 13.49± 13.85 and 3.10± 2.06 ml. PHS correlated well with step sectioned radical prostatectomy specimen total tumor volume (Spearman's coefficient of rank correlation of 0.624, p=0.009). Thus, using the clinically accepted volume threshold of 0.50 mL, the sensitivity, specificity, positive and negative predictive value of HistoScanning™ were 94.4%, 50%, 85% and 75%, respectively.
Conclusions: PHS has the ability to accurately detect cancer foci more than 0.5 ml within the prostate. Further studies to explore its role for the preoperative imaging in cancer prostate are required.

MP-14.15
Inter-Operator Reliability of Prostate Histoscanning™ for the Characterisation of Prostate Cancer
Simmons L, Robertson N, Ahmed H, Moore C, Emberton M
Div. of Surgery and Interventional Science, University College London, London, UK

Introduction and Objective: For a diagnostic test to be valid, it requires not only high performance characteristics, but must be reliable when applied by different operators. We carried out a pilot study observing the change in Prostate HistoScanning signal when the test is performed by two independent urologists.
Materials and Methods: Ten men with low risk prostate cancer on TRUS guided biopsies, undergoing Prostate HistoScanning had 3D TRUS acquisition performed by two operators. The second operator acquired images using the same equipment independently of the first operator and without alteration of the patient posi-

MP-14.13, Table 1.

Standard Biopsy					Targeted Biopsy				
Operator	PSA Range (Median)	Clinically significant disease detection rate %	All disease detection rate %	Positive cores %	Average number of biopsy cores	Clinically significant disease detection rate %	All disease detection rate %	Positive cores %	Average number of biopsy cores
1 Urologist	3.1-31 (6.91)	48 (n=10/21)	62 (n=13/21)	22 (54/245)	10.7	48 (n=11/23)	65 (n=15/23)	55 (27/59)	2.1
2 Radiologist	3.2-40 (7.5)	46 (n=6/13)	61 (n=8/13)	27 (33/122)	9.38	36 (n=4/14)	50 (n=7/14)	56 (18/32)	2.28
3 Radiologist	1.38-200 (7.9)	58 (n=7/12)	83 (n=10/12)	28 (40/142)	10.9	69 (n=9/13)	77 (n=10/13)	79 (23/29)	2.2

tion. The 3D TRUS data volume files were transferred to the Prostate HistoScanning machine at the time of acquisition for processing. An analysis of HistoScanning images for Prostate Volume and Prostate HistoScanning signal was performed for both acquisitions. HistoScanning analysis is a semi-automated process in which the reporter is required to define apex, base, and left and right borders of the prostate. Delineation of the prostate outline, division into sextants, and analysis of ultrasound signal for presence or absence of cancer is automated. Linear regression was used to calculate the correlation in both gland and suspected cancer volume generated by each acquisition. Cohen's kappa statistic was performed to estimate the agreement for presence or absence of a suspicious focus ≥0.5cc in any one sextant. Kappa values indicate a range of agreement (<0 indicates no agreement, 0–0.20 slight, 0.21–0.40 fair, 0.41–0.60 moderate, 0.61–0.80 substantial, and 0.81–1 almost perfect agreement).
Results: There were 60 sextants from 10 patients analysed. Operators agreed on the presence or absence of a lesion ≥0.5cc within a sextant in 75% of sextants (n=45). Cohen's kappa co-efficient was 0.57 (95% CI: 0.30-0.72). Linear regression for prostate volume between the two acquisitions exhibited strong correlation (R^2= 0.98). For suspected tumour volume, linear regression was also good (R^2= 0.76).
Conclusions: We have shown that outputs from HistoScanning spectral image analysis were stable between two operator-acquired images. The strength of association was greater for prostate volume than it was for tumour volume as reliability in the latter is very sensitive to subtle differences in image quality.

MP-14.16
Prostate Cancer Screening in China: Yes or No
Wang W[1], Chen S[1], Na Y[2]
[1]Urology Dept., Beijing Tongren Hospital, Capital Medical University, Beijing, China; [2]Wujieping Urology Centre, Beijing, China

Introduction and Objective: Prostate cancer screening is quite controversial in the field of urology. In China, we are facing different situation compared with our colleagues in America and Europe. According to the International Agency for Research on Cancer (IARC) data, the incidence of prostate cancer was 4.34/105. Most prostate cancers were in the advanced stages at the time of diagnosis and had a short survival time thereafter. The epidemiology data of IARC were based on the data of inpatients cancer registration of China, not based on the screening data. Since 2009, we launched the PSA based cancer screening project in Beijing. To our knowledge, this was the first community based PSA screening project in China.
Materials and Methods: Through random sampling methods, male community residence older than 50 was selected to receive PSA test. The prostate biopsy indication is repeated PSA >4ng/ml, or DRE is abnormal. The ultra-sound guided transrectal 12 cores prostate biopsy was done when the participant signed the consent form.
Results: There were 3359 male community residents older than 50 who received PSA screening in Beijing. There were 87 cases that met the indication of prostate biopsy. Of participants, 61/87 received ultra-sound guided transrectal 12 cores prostate biopsy. Finally, 19 case of prostate cancer were found; 57.9% (11/19) were advanced prostate cancer. The standardized detection rate of prostate cancer in Beijing community residents was estimated at 74.1/105 which was 8 times than the data (4.34/105 person years) from IARC.
Conclusions: The current state of prostate cancer diagnosis in China is similar to that which existed in the United States during the period from 1983 to 1988, before the wide acceptance of population PSA screening. Mass PSA screening should be advocated now because most of the screened cases were still advanced cases. We should rethink the PSA screening policy in China when the organ defined diseases become the majority after decades of PSA screening.

MP-14.17
How Does Circumcision Prevent Prostate Cancer and Could Understanding Why Reduce False Positive PSA Screening Tests?
Oliver T
Barts & The London School of Medicine, Queen Mary University of London, London, UK

Introduction and Objective: There is evidence that sustained sub-clinical prostatic inflammation leads to Proliferative Inflammatory atrophy (PIA) a known precursor of malignant change in the prostate. A circumcision trial in Africa demonstrated the dominant bacterial flora in un-circumcised men was anaerobes. There are reports that circumcised men have an unexplained lower incidence of PC and conflicting reports that Vitamin D deficiency increases death from prostate cancer. This presentation reviews the literature as a first step in investigating the hypothesis that lack of circumcision and Vitamin D deficiency synergise as a cause of PC through diminished host surveillance facilitating anaerobe colonization of the prostate.
Materials and Methods: Four PubMed literature searches performed using the terms prostatic & PC and circumcision & foreskin identified 11 studies. Globocan 2008 data has been analyzed for PC and cervix cancer incidence and deaths on basis of incidence of circumcision. Ten papers in the IARC 2008 report on vitamin D and PC + 4 more published from 2008-12 and 3 papers that have examined impact of an index of life-time sun exposure on PC risk have also been reviewed
Results: Four studies comparing people of Jewish decent (n=2,878) vs people of non-Jewish decent (n=40,768) demonstrated significantly reduction of PC in people of Jewish decent (OR 0.25). Seven reports of circumcision frequency in PC (n=2,500) and matched controls (n=2,463) demonstrated a reduced frequency in patients (OR 0.86). In Globocan 2008 data though predominantly circumcised USA, Israeli/Saudi populations had less PC deaths than uncircumcised Brazilians, PC deaths were even lower in uncircumcised Japanese, Chinese and Danes and the circumcised Pakistani and Bangladeshi populations had similar PC mortality as predominantly uncircumcised Indians. Only 2 of the 13 plasma 25-OH Vit D series showed significant reduction of PC overall though 4 did show reduced deaths. In contrast all 3 series that have examined an index of long-term sun exposure showed significant reduction of PC (OR 0.18, 0.32 and 0.52 n= 850)
Conclusions: The conflicting Vitamin D data suggest that there is a need for prolonged sub-clinical immune-deficiency to enable anaerobes to promote the development of PC. If confirmed by prospective studies, elimination of false positives due to anaerobes could improve the specificity of PSA screening. The inconsistencies in the circumcision data suggest that the hygiene rules associated with religious circumcision could add to the reduced PC in Jewish men, and mirror the similar differences seen in the protective value against AIDS of circumcision in Asian Muslims compared to Xhosa African men.

MP-14.18

PCA3 Test as an Adjunct in Diagnosis of Prostate Cancer

Yutkin V[1], Al-Zahrani A[1], Williams A[1], Hidas G[2], Martines C[1], Izawa J[1], Pode D[2], **Chin J**[1]

[1]University of Western Ontario, London, Canada; [2]Hadassah and Hebrew University Medical Center, Jerusalem, Israel

Introduction and Objective: Early diagnosis of prostate cancer is conventionally done with serum prostate specific antigen (PSA) test and digital rectal examination, but these tests lack specificity. Many men worldwide undergo repeated, sometimes unnecessary prostate biopsies due to suspicious or rising PSA levels. A urine test PCA3 is gaining popularity, predominantly in the field of managing patients with suspicious PSA and previous benign biopsies. In this multi-national study we assessed the performance of the PCA3 urine test in patients who were candidates for prostate biopsies due to high or rising PSA's.

Materials and Methods: The PCA3 scores were determined in urine samples in these men A PCA3 scores of 35 or higher were considered higher probability of cancer. Subsequent biopsy was performed as per current best practice and at the discretion of the urologist in concert with the patient. To retrospectively assess the performance of PCA3, we used multiple logistic regression analysis and ROC curves were constructed to evaluate PCA3 as a prognostic factor compared with PSA and evaluated the influence of PCA3 testing on the decision making.

Results: There were 401 patients who had PCA3 score available. The most common indication was rising or high PSA after previous negative biopsies: in 256 patients (63.8%), followed by the finding of high grade prostatic intraepithelial neoplasia (HGPIN) or atypical small acinar proliferation (ASAP) on previous biopsy – in 101 patients (25.2%). Forty four subjects (11%) did not undergo prostate biopsy prior to PCA3 testing. PCA3 scores were significantly lower in patients without malignancy using a cutoff score of 35 (OR 2.99 (95%CI) (1.42, 6.30), p=0.004). On Receiver Operating Curve analysis PCA3 AUC of 0.722 was significantly greater than PSA (0.4837). Sensitivity and specificity of PCA3 score using the 35 cutoff were 63.6% and 63.0%, respectively. When a cutoff score of 20 was used, the sensitivity and specificity of PCA3 score were 86.4% and 41.3%, respectively. The PCA3 test influenced the clinical course of the patient in 73.5% of cases. The follow-up PSA values in patients who did not perform biopsy after PCA3 testing had, without exception, remained stable or dropped (7.86 vs. 6.22, p=0.003) with follow-up of at least 6 months.

Conclusions: In this multinational study we demonstrate that urine PCA3 score test out-performs PSA in decision making in men facing possibility of repeat prostate biopsy. We recommend that the PCA3 results should be integrated with other relevant data and rather be used in continuous fashion, and not with certain cutoff value.

MP-14.19

Evaluation of the Risk Factors for Complications after Prostate Needle Biopsy

Sung L, **Noh C**, Chung J, Yu J

Inje University Sanggye Paik Hospital, Seoul, South Korea

Introduction and Objective: Prostate biopsy for the diagnosis of prostate cancer by transrectal ultrasonography (TRUS) is a common procedure used in daily urology practice with a low complication rate and easy applicability. But, acute prostatitis or sepsis could be serious complications of the procedure. Recent studies showed that patients with urethral catheter, diabetes mellitus or those who planned to undergo biopsy from more sites than the standard, should be closely monitored after the biopsy for more frequent complication rate. In this study, the precipitating factors for complications after prostate biopsy by TRUS were evaluated in one center.

Materials and Methods: Between January 2007 and May 2011, 484 patients who underwent prostate biopsy by TRUS were assessed retrospectively. Standard preparations, including enema and prophylactic oral antibiotics were given to most patients. The relationship of complications and age, serum total PSA level, prostate volume, number of cores, number of repeated biopsies, presence of urethral catheter and diabetes mellitus, and unprepared prostate biopsy was assessed. Data were analyzed using univariate and multivariate analysis.

Results: Of the 484 patients, 24 (4.96%) developed complications, including acute prostatitis (18 patients, 3.72%), urinary retention (2 patients, 0.41%), persistent hematuria (1 patients, 0.21%), sepsis (3 patients, 0.62%) within a week after biopsy. Seven patients were hospitalized for high fever. On univariate analysis, unprepared prostate biopsy was the only parameter for complications (p=.0.037). There was no parameter for sepsis and significant relationship between complications and other parameters.

Conclusions: Unprepared prostate biopsy was the only risk factor for complications. General preparations (enema and prophylactic antibiotics) and aseptic procedure are believed to be more important for preventing complications, although many studies showed various risk factors for complications after prostate biopsy.

Moderated Poster Session 15
Female Urology
Pelvic Disorders
Tuesday, October 2
15:15-16:45

MP-15.01

Pelvic Floor Plasty with Women Suffering from Urinary Incontinence

Neimark A, Razdorskaya M, **Aliev R**, Kondratyeva J, Shelkovnikova N
Dept. of Urology, Altay State Medical University, Barnaul, Russia

Introduction and Objective: Up to the present day surgical treatment of women with urinary incontinence has been an important problem of modern urologic gynecology. By the present moment more than 200 different types of surgery have been developed but none of those methods leads to 100% full recovery. The research described is aimed at analyzing the results of combined surgical treatment of women with pelvic floor incapacity and stress urinary incontinence (a combination and modification of existing methods).
Materials and Methods: Within the time period from 2000 to 2010 we estimated the results obtained in course of examining of 516 women at the age of 21-72 suffering pelvic floor incapacity and stress urinary incontinence, who underwent surgical treatment. The patients underwent the following surgery: anterior colporrhaphy with bladder sphincter plasty according to standard practice subjected to our modification, cystourethropexy (fixation of the paraurethral tissue and the neck of urinary bladder to the anterior abdominal wall by means of ligatures), as appropriate it was supplemented with posterior colporrhaphy with perineolevatoroplasty and cervicectomy according to generally accepted rules. The operation duration varied from 1 hour 30 minutes to 3 hours and depended on the scale of intervention needed. Foley catheter was removed on the second day after the surgery thus preventing ascending infection development. 62 women (12%) showed lack of independent urination within 2-7 days thus requiring administration of stimulating therapy and bladder catheterization followed by urination recovery. In 2 (0.4%) cases vaginal wound healed by secondary adhesion and in 1 case (0.2%) it was anterior abdominal wall.
Results: Within the period of observation from 1 to 10 years 449 patients (87%) noted a good result, 53 patients (10.2%) showed satisfactory result and 14 patients (2.8%) noted the result was poor. The results were obtained while questioning the patients, taking into consideration the absence of clinical signs of colpoptosis or stress urinary incontinence relapse. In the course of examination on a gynaecological chair 474.7 (92%) patients showed no signs of colpoptosis or stress urinary incontinence. The results of surgical treatment were estimated by means of ultrasonic bladder and urethra examination, and upon surgery, posterior vesicourethral angle became more acute at rest and on straining (130.0±1.02 and 140.4±1.02 gr correspondently) and urethra lengthened at rest as well as on straining (3.38±0.3 и 3.16±1.1 sm correspondently). Moreover, urodynamic parameters changed, upon surgery such results were observed as statistically valid decrease in maximum volumetric uroflow rate down to 17.8±2.42 ml/sec and statistically valid increase in urination duration up to 26.08±2.74 sec.
Conclusions: This method of treatment influences all the stages of pathogenesis and performs the tasks of surgical treatment of patients with stress urinary incontinence, eliminates all the changes of anatomic and functional state of lower urinary tract fully enough and restores "the whole sphincter mechanism of pelvis".

MP-15.02

The Role of *U. Urealyticum* in the Development of Urethral Polyps in Women

Neimark A, Kondratyeva J, **Aliev R**, Razdorskaya M, Shelkovnikova N
Dept. of Urology, Altay State Medical University, Barnaul, Russia

Introduction and Objective: Urethral polyps are often found in women at the age of 58-60 and can be located in any part of urethra, more often – by the external urethral opening. It is generally accepted that the rise of urethral polyps in women is affected by urogenital infection (clamydia, mycoplasmal, viral), disturbed circulation in the urethral wall, and menopausal dyshormonal changes. The objective of the present research was to estimate *U. urealyticum's* occurrence rate in the cases of urethral polyps, as well as to study the peculiarities of pathomorphological pattern of the polyps in the external urethral opening in women with *U. urealyticum* detected in diagnostically significant titers.
Materials and Methods: There were 180 women examined, aged 45-60, with polyps in the external urethral opening. With the help of cultural analysis method in urethral and cervical smears in titers over 10^5 CFU/ml, including those in 50 women (67.5%) in titers over 10^8 CFU/ml, 74 patents (41%) were given a diagnosis of ureaplasmatic infection. Patients underwent radio-wave excision with pathomorphological and electron microscope examination of biopsy material.
Results: All 74 cases revealed hyperplastic and metaplastic changes of urothelium with chronic inflammation in subepithelial stroma in the polyp tissue. In the lining along the histological section perimeter various epithelial structures were determined: transitional epithelium with distinct quantity of cellular layers, pseudostratified, and stratified epithelium. Transitional epithelium hyperplasia with urothelium intussusception into the polyp stroma accompanied with sporadic Brunno epithelial loculi formation was registered in all 74 cases, cystic loculi formation was detected in 83% of cases. Diffuse lymphocytic infiltration with lymphoid follicles formation was detected in polyp subepithelial stroma and among the cysts. Large urethral polyps numbered up to 4-5 lymphoid formations, which was a pathomorphological peculiarity of the polyp samples under observation, and indicated proliferative inflammation. Electron microscopy of ablated urethral polyps was carried out for 50 patients with high titers of ureaplasmatic infection. Ureaplasma colonies were identified in interstitium, defective fibroblasts, and plasmacytes. We observed vacuolization and macrophagocytes, plasmacytes, and epitheliocytes cytoplasm crippling which were caused by ureaplasma intracellular location.
Conclusions: Thus, hyperplastic, metaplastic, and dysplastic changes found in urethral polyps indicate instability of urothelium towards ambient conditions which include long-lasting ureaplasmatic infection that matches urinary tract cells. In its turn, polyp formation in the external urethral opening can be a manifestation of *U. urealyticum* present in the urogenital tract in women.

MP-15.03

The Role of Human Papilloma Virus in the Development of Chronic Urethritis Aggravated by Persistent Pain Syndrome in Women

Neimark A, Shelkovnikova N, **Aliev R**, Kondratyeva J, Razdorskaya M
Dept. of Urology, Altay State Medical University, Barnaul, Russia

Introduction and Objective: One of the cases of chronic urethritis in women is vulvovaginal papillomavirus infections. Papillomavirus infection affects not only vagina, neck of uterus, uterus, but urethra, Littre's glands, and the bladder as well, and leads to urethral syndrome and chronic pelvic pain syndrome formation. The objective of the present research is to identify the role of combined chronic urethritis and vulvovaginal papillomavirus infection in cases of urethral syndrome and persistent dysuria, and to study the facilities of immunomodulatory therapy.
Materials and Methods: There were 35 patients aged 18-28 included into the research. PCR method showed human papilloma virus in all the objects (16, 18, 31, 33, 51, 560 were detected in 52%, and 6, 36, 44, 50 of low oncogenic risk – in 30%; 18% had a combination of several HPV types). All the patients were subjected to a complex examination including urethral and cervical material analysis for infections by PCR method with genetic typing, detailed colposcopy, urethrocystoscopy, urodynamic examination, and estimation of urethral, cervical, and vaginal mucous membranes microcirculation. To treat papillomavirus infection Inosine pranobex was used, it inhibits virus replication by suppressing virus RNA synthesis. A daily dose of Inosine pranobex was 50 mg/kg (500 mg per 10 kg of body weight) 3 times a day for 5 days, then the course was repeated three times with dosage intervals of 1 month. Taking into consideration a wide and often uncontrolled use of antibiotics in past history, as well as an active inflammatory process in urogenital area aggravated by pain syndrome, together with immunomodulatory therapy patients underwent urethral instillations with 2% Chlorophyllin oil solution, vaginal tampons with Dimexid and overnight tampons with Lydaza, paraurethral sanitary towels with ozonized linseed oil, vitamin injections with 1, 6, 12, and nonsteroid antiphlogistic agents, as well as physiotherapy by means of a vaginal inductor Magnitolazer for 10 days in an in-patient department.
Results: Three months later after the treatment started PCR analysis detected no HPV in all 35 patients, papillomavirus skin rash in the nympha area vanished in 10% of the objects (the rest 22 % underwent a laser destruction of genital warts). Urodynamics improved in 87% of the objects. Pain syndrome was stopped in 90% of cases. Sexual life came to normal in 83%. Dyspareunia vanished in 77% of patients. 89% of the objects detected no relapse of the disease.
Conclusions: Application of immunomodulators together with local antiphlogistic and destructive treatment methods improve treatment efficiency in cases of recurrent chronic urethritis caused by papillomavirus infection.

MP-15.04
Formation of the Connective Tissue with Cell-Active "LitAr" Material for the Treatment of Stress Urinary Incontinence: Results of 3 Years' Observations
Dubrovin V[1], Kislov A[1], Litvinov S[2]
[1]Republic Clinical Hospital, Yoshkar-Ola, Russia; [2]National Research University, Samara, Russia

Introduction and Objective: The application of cell-active implants makes possible formation of the connecting tissue for the treatment in stress urinary incontinence (SUI) surgery. Thus, the biotransformation of the material can occur in the shortest possible time. Regeneration and angiogenesis in the replacement zone should proceed without toxic products formation.
Materials and Methods: The 41 middle-aged patients of 47,5 years (43 to 61) with type 2 of female SUI were subjected to the low-invasive colposuspension procedure with the use of the original biodegradable implant "LitAr". With the use of low-invasive colposuspension method the biodegradable implant has been placed on both sides from the bladder neck between the surfaces to be sutured. The change of the condition implants has been checked by means of MRI on the 4th, 16th and 30th days after performing the procedure, and existed for three years.
Results: In the course of MRI research observed on the 4th day there has been revealed hydration and the start of biodegradation of the material. By the 16th day regenerative tissue has been formed on the implant place, hydration was less, and by the 30th day there was no hydration at the place of implant. We were observing the process of healing the wound without complications for all the patients. All the patients could achieve continence without postoperative complications. There were 38 (92,7%) women satisfied with the results and have no incontinence three years after the procedure. Three (7,3%) note reduction of the sign incontinences.
Conclusions: These results of 3 years of observations have show that the introduction of the biodegradable implant into the bladder neck area has provided formation of the native connective tissue in the operation zone. There were no by-effects for the patient. Low-invasive access was effective for this procedure.

MP-15.05
TVT versus TOT: A Single-Center, Prospective Randomized Study
El-Hefnawy A, Abed A, Wadie B
Urology and Nephrology Center, Mansoura University, Mansoura, Egypt

Introduction and Objective: After introduction of TVT and TOT, both techniques became so widely used that they represent the denominator in incontinence trials. Our aim is prospectively comparing TVT to TOT, regarding cure of incontinence and adverse events.
Materials and Methods: Between September 2006 and September 2009, women with SUI were randomized to receive TVT (Gynecare, Ethicon) or TOT (Aris, Mentor –Porges). All were adults with predominant stress incontinence. All had clinical evaluation, lab testing and urodynamics. Patients were randomly assigned to the surgical modality, using closed envelopes. Randomization performed after installation of spinal anesthesia. A standard inverted U vaginal incision was performed. Grade II cystocele or rectocele were only concomitant procedure allowed per protocol. TOT was inside-out and TVT was fixed in retrograde approach in all patients. Patients had PVR after catheter removal. Follow up at 3, 6 and 12 months included 1-hr. pad testing, stress test and symptom scores. Post operative complications were stratified according to modified Clavien classification.
Results: A total of 75 women were enrolled in the study. There were 65 patients who completed a minimum of 1 year follow up. Median age 47 (range: 33-60) years. Median parity was 4 (range: 2-11). Mean BMI was 33.6±5. 34 and 7 of the study group had cystocele and rectocele respectively. At 1 year, objective cure rate based on 1 hour pad test was 78.9%. Mean pad weight increase in those deemed failure was 4gm. Based on stress test, cure rate was 89.5%. Based on anti incontinence score, cure rate was also 89.5%. Overall complication rate was 21.5% (14/65). One vascular injury required blood transfusion and one vaginal extrusion conservatively treated with TVT. One bladder injury and 3 thigh pain (with TOT). Cure rate based on Pad test, anti incontinence score and stress–test was significantly different among the 2 groups at year. P value was 0.002, 0.001

and 0.02 respectively, using independent t -test.
Conclusions: TVT seems superior to TOT at 1 year, regarding cure of incontinence. TOT seems safer. Only Clavien grade 4 adverse event (inferior epigastric injury) was inflicted by TVT. Bladder injury can happen with TOT but no Clavien 3 or 4 were noticed with TOT.

MP-15.06
Etiology and Management of Acute Urinary Retention in Female Patients
Faruqui N, Nadeem M, Yaseen T
The Aga Khan University, Karachi, Pakistan

Introduction and Objective: Acute urinary retention is an uncommon but important problem in females (1). The causes can be variable including obstructive, neurological, post operative, pharmacological or psychogenic (2). The optimal work up and subsequent management is still in debate, (3) especially in our part of the world. This is the first study from Pakistan focusing on etiology and management of the subset of patients presented to us. The aim is to identify the causes of acute urinary retention (AUR) and its management in female patients presented at a tertiary care hospital.
Materials and Methods: We performed a descriptive retrospective study including the women admitted in our hospital either with principal diagnosis of urinary retention or went into AUR during the hospital stay from Jan 2007 to Dec 2011. A total of 156 patients were identified from the hospital database using ICD 9 CM. There were 88 evaluable patients analyzed using SPSS version 19. Medical charts were reviewed with special emphasis on medical history, physical examination and work up.
Results: The mean age of presentation was 47± 21 years. More than half of the patients were admitted in obstetrics service with full term pregnancy, of them more than 80% went into retention either after episiotomy (90%) or LSCS (10%). Other causes identified in descending order are postoperative (18%), UTI (9%), fowler's syndrome (8%), neurogenic bladder (3%), constipation (3%), post radiotherapy (2%), cystocele (1%), urethral stenosis (1%) and urethral caruncle (1%). General physical, abdominal and pelvic examination was done in all patients. Urinalysis was done in all patients while urine culture and ultrasound KUB was done in nearly half of the patients. Urodynamic study (UDS) was done in selected patients only. All patients were initially managed with foley's catheterization; trail without catheter was successful in 69% while 22% had failed TWOC and 9% was never given TWOC.
Conclusions: History and examination are key component for diagnosis. Urinalysis, culture and ultrasound KUB are optimal base line investigation while UDS should be done in selected patients. Good postoperative pain control can prevent significant number of patients from AUR.

MP-15.07
Frequency and Correlates of Sexual Dysfunction Among Women Attending Outpatient Gynecological Clinics
Hamidi Madani A, Tavakoli S, Farzan A
Urology Research Center, Guilan University of Medical Sciences, Rasht, Iran

Introduction and Objective: Female sexual dysfunction (FSD) is a highly frequent multifactorial problem and may have a major affect on the quality of life. To investigate frequency of female sexual dysfunction and its correlated factors in a group of women attending outpatient gynecological clinics.
Materials and Methods: A total of 300 married women attending 4 gynecological outpatient clinics in Rasht, Iran were assessed. Sexual function was assessed by FSFI questionnaire. Demographic characteristics, obstetric and surgical history, some medical conditions and BMI, life style variants, knowledge about sexuality, and help-seeking behavior were assessed by a self-created questionnaire. Frequency of FSD based on the FSFI questionnaire, and FSD correlates.
Results: Of all women in this study, 76.67% reported sexual dysfunction in at least one domain. The total frequency of FSD according the low total FSFI score was 18.3%. The most frequent dysfunction was desire disorders (63.7%). The frequency of other sexual disorders were pain disorders (35.7%), arousal disorders (34.7%), orgasmic disorders (16%), lubrication disorders (10.7%), and satisfaction disorders (10.7%). Age, number of deliveries, number of children, number of abortions, menopause, mode of delivery, episiotomy, anemia, psychiatric disease, psychotropic medication use, poor sexual knowledge, and husband's age showed a significant statistical correlation with low total FSFI score. Women who thought they had a sexual problem were 15.3% of all subjects, of which 67.4% have had no professional consultation about it.
Conclusions: Female sexual dysfunction was very frequent in women attending gynecological clinics. Thus, physicians should be trained and prepared to address this issue.

MP-15.08
Lower Urinary Tract Symptoms in Women with Cervical Cancer Receiving Radiotherapy with Curative Intent: A Prospective Observational Study
Smit S[1], Heyns C[1], van der Merwe A[1], Simonds H[2]
[1]Dept. of Urology, University of Stellenbosch, Tygerberg Hospital, Cape Town, South Africa; [2]Dept. of Radiation Oncology, University of Stellenbosch, Tygerberg Hospital, Cape Town, South Africa

Introduction and Objective: The objective of this study was to determine the prevalence and cause of lower urinary tract symptoms (LUTS) in women with advanced cervical cancer treated with radiotherapy (RT).
Materials and Methods: A prospective observational study was conducted on 102 women with squamous cell carcinoma of the cervix (mean age 48.2 years, range 23-79) seen February 2010 through April 2011. Patients received external beam RT to the pelvis and intra-cavitary high dose rate brachytherapy with curative intent (total RT dose = mean 69.3Gy, median 74Gy, range 21.4-79Gy). Cisplatin chemotherapy for radiosensitization was given in 85% of patients. Mean follow-up after RT was 7 months (range 2-23). The international prostate symptom score (IPSS) was used to quantify LUTS. Statistical analysis was performed with Fisher's exact test for contingency tables, Mann-Whitney test for nonparametric variables and Wilcoxon matched-pairs signed-ranks test for paired data.Values are expressed as mean (range) or proportions (%).
Results: The cervical cancer was Stage 1-2 in 47.5% of patients, stage 3-4 in 52.5%, grade 1 in 3%, any grade 2 in 35%, any grade 3 in 62%. During follow-up there was an increase in the proportion of patients with urinary frequency (29% to 46%, p=0.046), nocturia (64% to 88%, p=0.028), urgency (26% to 57%, p=0.027) and a decrease in the proportion with macrohaematuria (9.9% to 0%, p=0.031) and microhaematuria (36.7% to 11.5%, p=0.017). At 3-month compared with 6-month follow-up, non-bladder toxicity decreased from 51.2% to 33.3% (p=0.0412). Comparison of stages 1-2 vs. 3-4 and total RT dose <74 vs. >74Gy is shown in the Table.
Conclusions: In patients with cervical cancer receiving RT with curative intent,

irritative LUTS at baseline is related to stage of disease, and during follow-up it is related to stage of disease and presence of UTI rather than the dose of RT given.

MP-15.08, Table 1.

At baseline	Stage 1-2 N = 47	Stage 3-4 N = 52	p-value
Total RT dose (Gy)	67.5 (26-75)	71.5 (21.4-79.0)	0.0001
Dysuria	8.7%	27.5%	0.020
Frequency	28.3%	27.5%	NS
Nocturia	47.8%	76.5%	0.006
Urgency	23.9%	27.5%	NS
IPSS total	7.2 (0-27)	9.0 (1-30)	NS
IPSS irritative	4.7 (0-13)	5.9 (1-15)	NS
Urinary tract infection (UTI)	26.3%	44.2%	NS
At 3 month follow-up	**Stage 1-2 N = 25**	**Stage 3-4 N = 21**	
Frequency	20%	73.9%	0.0004
Urgency	8.3%	52.4%	0.002
IPSS total	5.1 (0-22)	11.2 (1-30)	0.003
IPSS irritative	3.4 (0-13)	8.2 (0-15)	0.002
UTI	13%	50%	0.016
At 3 month follow-up	**Total RT dose <74Gy N = 23**	**Total RT dose >74 Gy N = 25**	
Frequency	39.1%	53.8%	NS
Urgency	22.7%	36.0%	NS
IPSS total	7.4 (0-26)	8.2 (1-30)	NS
IPSS irritative	5.0 (0-14)	6.3 (0-15)	NS
UTI	27.3%	20%	NS

MP-15.09
Low Dose Oral Desmopressin in Treatment of Nocturnal Polyuria in Elderly Women
Wang W, Chen S
Urology Dept., Beijing Tongren Hospital, Capital Medical University, Beijing, China

Introduction and Objective: To investigate the efficacy and safety of low dose of oral desmopressin in elderly women with nocturnal polyuria more than 30% of total daily urine volume.
Materials and Methods: There were 148 elderly women older than 60 referred to urology clinic of Beijing Tongren Hospital from 2009-2011 for treatment of nocturia included in this study. Three-day frequency-volume charts showed 108 patients were diagnosed with nocturnal polyuria. A total of 97 patients with nocturnal polyuria were randomly divided into 2 groups. Care was taken to match the patients of the two groups by age and clinical criteria. They complained of about 2 voids or more per night. Control group (n = 48) received liquid restriction during nighttime and patients of Experimental group (n = 49) received 0.1 mg desmopressin at bedtime and liquid restriction for 8 weeks. Patients were assessed after 4 and 8 weeks of treatment. Patients maintained flow volume charts and used diaries to record voiding data throughout the study. All patients were evaluated by serum sodium, nocturia cure rate, mean nocturnal urine output, mean number of nocturia, mean duration of the first sleep period and sleep quality.
Results: After 4 weeks of treatment with desmopressin, 28 patients (57.1%) had less than 2 voids, 21 patients (42.9%) had ≥2 voids per night ($p < 0.05$). After 8 weeks, 35patients (71.4%) with desmopressin had less than 2 voids and only 14 patients (28.6%) had more than 2 voids per night ($p < 0.01$). After 8 weeks, mean number of nocturia before and after receiving desmopressin were 2.9 and 1.6, respectively which differed significantly ($p < 0.001$). Mean number of nocturia before and after in control group were 2.8 and 2.3 respectively with no significant difference ($p > 0.05$). The mean duration of the first sleep period increased by 73% (from 2.2 to 3.8h) in the desmopressin group, compared with an increase of 19% (from 2.1 to 2.5 h) in the placebo group ($p < 0.05$). There were 79.6% of patients in desmopressin group satisfied with sleep quality compared with only 31.3% of patients in control group who were satisfied. After 8 weeks of treatment, desmopressin significantly decreased nocturnal urine output and the number of nocturia episodes, and prolonged the first sleep period after 8 weeks ($p < 0.05$). No serious systemic complications were found during the medication.
Conclusions: Low-dose oral administration of desmopressin is an effective and well-tolerated treatment for nocturnal polyuria in elderly women.

MP-15.10
Dynamic Transperineal Ultrasound in the Diagnosis of Female Lower Urinary Symptoms: Our Experience
Mirabile G, Gentile BC, Pisanti F, Albanesi L, Mavilla L, Brunori S, Shestani T, Vincenti G, Attisani F, Giulianelli R
Villa Tiberia Roma, Rome, Italy

Introduction and Objective: In presence of lower urinary tract symptoms in women with pelvic organs prolapse the diagnosis is based on a detailed case history record and a careful vaginal examination. A complete urodynamic assessment is not always mandatory, but can be helpful to define the prognosis and inform the patient about her vesicosphincteric function. On imaging side, urethrography has traditionally been used in the evaluation of cystocele and urethral hypermobility, but provides only intraluminal information. Ultrasonography is advantageous in that it does not involve ionizing radiation and has the capacity to help detect a cystocele with or without urethral hypermobility, without contrast agent filling, less discomfort for the patient and of course it is much cheaper. The aim of this study is to evaluate, in our experience, the usefulness and feasibility of perineal ultrasound, in the diagnosis of the causes of female lower urinary tract symptoms associated with pelvic organs prolapse.
Materials and Methods: From June 2006 to December 2010, 95 women between the age of 25 and 83 years, underwent a translabial ultrasound for urinary incontinence (75) or other lower urinary symptoms (20), clinically associated with pelvic organs prolapse. All of them were examined by a uro-gynecologist, to determine the grade of pelvic organ prolapse and then, the same doctor performed a translabial ultrasound to complete the diagnosis. We use a simple 2-dimensional (2D) B-mode ultrasound system with a 3 to 6 Mhz curved array transducer on perineum.

Results: In 66 cases (70%) perineal ultrasound confirmed the clinical vaginal examination, in 29 cases added important information which could have interfered with a correct treatment of symptoms. In one case ultrasound made possible the diagnosis of urethral diverticulum not evident to clinical examination. In 4 cases it has been possible to highlight the incorrect position of surgical mesh. In 5 cases ultrasound evidenced a cystocele with intact retrovescical angle associated with voiding dysfunction. In 4 cases ultrasound evidenced a cystourethrocele and in 4 cases urethral hypermobility which was not clear in clinical examination. In 2 cases ultrasound graphically showed the effects of anteriorized cervix in women with an enlarged, retroverted uterus and voiding dysfunction. In 9 cases ultrasound clarified the posterior compartment prolapse (rectocele, enterocele or rectal intussusception).
Conclusions: Clinical examination is limited to grading pelvic organs prolapse. In our experience translabial ultrasound has been a simple, not expensive and not invasive test which simplifies the differential diagnosis between a cystourethrocele associated with urodynamic stress incontinence and a cystocele with intact retrovescicale angle, generally associated with voiding dysfunction which could hide stress incontinence. Ultrasound could prove the presence of urethral diverticula that could be missed on clinical examination. Translabial ultrasound provides immediate objective confirmation of clinical examination and it could easily enter in clinical practice before pelvic reconstructive surgery.

MP-15.11
Medium Term Results of Female Pelvic Floor Reconstruction with Synthetic Meshes: A Clinical Comparison of the Efficacy, the Operating Time and Complications: Our 6-Year Experience
Salmas I, Kollaitis G, Kapetanellis E, Spapis V, Drogosis A, Papathanasiou G, Tompros G, Tsagatakis E, Karanastasis D
Dept. of Urology, General Hospital of Athens "ELPIS", Athens, Greece

Introduction and Objective: Pelvic organ prolapse is a major health care problem especially in the aged population. We present our 6-year experience and medium term results of female pelvic floor reconstruction using synthetic meshes via transobturator foramen (prolift™) without suture and self-retaining meshes (elevate™). We prospectively evaluated and compared clinical efficacy, operating time and complications between tension-free vaginal mesh through transobturator foramen (prolift™) and self-retaining meshes (elevate™) in 120 patients and 3.2 years mean follow up.
Materials and Methods: From January 2006 to December 2011, 71+39 female patients with pelvic organ prolapse underwent tension-free (1st group) and self-retaining (2nd group) vaginal meshes procedure in our department. In the 1st group 46 patients were treated for cystocele, 12 for rectocele and 13 for recto-cystocele using tension-free without suture vaginal meshes (prolift™). In the 2nd group 26 patients were treated for cystocele, 6 for rectocele and 7 for recto-cystocele using self-retaining vaginal meshes (elevate™). The mean age was 64.5 yrs (35-88) in the 1st group and 62.4 yrs (43-83) in the 2nd group respectively. The efficacy at 1, 3, 6, 12 months, the mean operating time and complications were evaluated and compared. Statistical analysis was performed using t-test and x^2-test.
Results: Peri-surgical complications as hemorrhages were minimal with no rectal or bladder injury in both groups. The mean operating time was 28min vs 20min respectively for anterior procedures and 45min vs 35min for both anterior and posterior procedures. Anatomical success rate at 3, 6, 12 months was 92%, 90.5%, 89.3% (1st group) and 93.6%, 91.5%, 90.1% (2nd group) respectively. Post-surgical complications were: vaginal mesh extrusion 2 patients (1st group) 0 patients (2nd group), pelvic pain 10 patients (1st group) 2 patients (2nd group), stress urinary incontinence 2 patients (1st group) 0 patients (2nd group) and no recurrence of prolapse in both groups.
Conclusions: The female pelvic floor reconstruction with synthetic meshes presents high efficacy without significant differences between tension free and self-retaining meshes. The operating time, the vaginal mesh extrusion and post- operative pain were higher in the tension free group. There were not any significant differences with respect to the other complications.

MP-15.12
Trans Obturator Four Arm Polypropylene Mesh in the Treatment of High Stage Cystoceles
Sharifiaghdas F
Shahid Beheshti University of Medical Sciences, Shahid Labbafinejad Hospital, Tehran, Iran

Introduction and Objective: To report the short-term single center results of vaginal cystocele repair using trocar-guided transobturator four arm polypropylene Mesh.
Materials and Methods: All patients with cystocele stage ≥ 3 according to the international continence society pelvic organ prolapse Quantification (ICS PoP-Q) were enrolled in this study.
Data on prior treatments, intra and post operative complications were collected and the patients were visited after the first post-op week, 1, 6, and 12 months. Anatomical outcomes were assessed by comparing the pre and post-op ICS PoP-Q stage. Function was assessed in terms of urinary problems. Failure was defined as relapse of Pop-Q stage more than or equal to 3.
Results: Mean follow-up was 8 months. Of the 30 patients, 14 suffered from cystocele stage 4. Mean operation time was 55 minutes. There was no bladder injury. Two patients experienced intra operative hemorrhage more than 200 mililiters. Vaginal wall was not trimmed in any and was oversewn in all. There was one vaginal erosion of Mesh and one recurrence of cystocele. Ten patients suffered from stress urinary incontinence which was cured in 9 and improved in another. Two patients reported denovo urge- incontinence, and 93% of patients were satisfied from the operation.
Conclusions: Trocar-guided transobturator four arm polypropylene Mesh repair is highly effective in the surgical treatment of high stage cystocels at short–term follow-up with a low complication rate.

MP-15.13
Quality of Life in Women with Pelvic Organ Prolapses in Symptomatic and Asymptomatic Population
Svihra J[1], Svihrova V[2], Digesu A[3], Hudeckova H[2], Kliment J[1], Swift S[4], Khullar V[3]
[1]Dept. of Urology, Jessenius School of Medicine, Martin, Slovak Republic; [2]Dept. of Public Health, Jessenius School of Medicine, Martin, Slovak Republic; [3]Dept. of Urogynecology, St. Mary's Hospital, London, UK; [4]Dept. of Obstetrics and Gynecology, Medical University of South Carolina, Charleston, USA

Introduction and Objective: Pelvic organ prolapse (POP) is associated with significant health-related quality of life. The aim of this cross-sectional study is to estimate quality of life (QoL) and prevalence of pelvic organ prolapse among symptomatic and asymptomatic adult women.
Materials and Methods: The cross-sectional study included adult women

selected from database of gynaecological outpatient clinics. An age-stratified random sample underwent clinical examination symptoms and signs of pelvic floor prolapse. Symptomatic POP was defined by feeling a bulge from the vagina, pressure or protrusion and signs of the pelvic organ prolapse according to the quantification system (POP-Q). The prolapse quality-of-life questionnaire (P-QOL) consists of 20 questions pertaining to nine quality-of-life domains including: general health perceptions, prolapse impact, role limitations, physical limitations, social limitations, personal relationships, emotional problems, sleep/energy disturbances and severity measures. All women filled P-QOL questionnaires and then underwent POP-Q examination during maximal Valsalva. Women with symptomatic prolapse were compared with women without symptomatic prolapse and women with symptoms of prolapse.
Results: Study included 1200 females, 785 of whom completed the prolapse quality-of-life questionnaire (65.4 %). The mean age was 47 years (range 18 – 82 years). No symptoms and signs of POP were in 78.5 % (females < 40 years) vs. 8.8 % (females > 70 years), signs of prolapse according to the quantification system were 3.5 % (females < 40 years) vs. 8.8 % (females > 70 years), symptoms of POP were in 14.1 % (females < 40 years) vs. 11.8 % (females > 70 years). Symptomatic POP was in 3.9 % (females < 40 years) vs. 70.6 % (females > 70 years). All positive stages of pelvic organ prolapse stages were in 48.7 %, all symptomatic pelvic organ prolapses were in 27.6 %. The total scores for each of the P-QOL domains were found to be significantly higher for symptomatic women compared to asymptomatic women. The prolapse quality-of-life questionnaire confirmed significant trend toward advancing age in all domain.
Conclusions: The prolapse quality-of-life questionnaire (P-QOL) confirmed significant impact of symptomatic pelvic organ prolapse on quality of life.

MP-15.14
Mesh Deformity after Prolift: Do We Have an Answer?
Vaze A
Lilavati Hsopital, Mumbai, India; Jaslok Hospital, Mumbai, India; Wadia Hospital, Mumbai, India

Introduction and Objective: Trans vaginal mesh was popularized since 2001, and in 2010, in only the USA, more than 10,000 cases were done for POP and SUI. However, for the last 6 years, more than 3000 cases (1503 POP, 1497 SUI) had mesh complications. Hence in July 2011, the FDA sent a warning to all surgeons and patients about mesh and its problems. We had three cases, which were referred after prolift procedure, done 2 years ago (done for grade 3 cystocele). All these cases had a painful and deformed vagina, dyspareunia and even sitting normally in chair was difficult. They had a long antibiotics and analgesic treatment without any relief.
Materials and Methods: All three females were in the age range of 35 to 55 years and sexually active before prolift surgery. Clinical examination showed a tender, deformed and lumpy vaginal surface from introitus up to apex. All had undergone hysterectomy, yet at site of uterosacral and cardinal ligament, painful movement and nodular feel could be felt. No erosion of mesh was noted in vagina and urethra. The urinary flow was normal. The lower abdomen showed vague tender areas and per rectal examination, it also revealed a tender, nodular posterior vaginal septum. All three had abstained from intercourse for more than 1 year. USG showed normal urinary bladder but showed a variegated appearance on posterior wall of bladder. MRI also showed that POP was cured but had a nodular and lumpy feeling all around posterior wall of bladder. No mesh was seen in MRI. Routine biochemical tests were normal. They were offered a laparoscopic adhesiolysis with omental wrapping up to trigone of bladder. The three trocar technique was used. A 10mm, camera trocar was inserted with zero degree 10 mm telescope through umbilicus. Right 10mm and left 5 mm port was placed 3 fingers below and lateral to umbilicus. On entering peritoneum, a gooey appearance was noted between vagina and bladder. No mesh was ever seen. The vagina was elevated above and below by vaginal dilator. This facilitated a plane of dissection between bladder and vagina. Majority of dissection was done by sharp dissection, only at corner, a cutting cautery was used. The plane was followed up to trigonal level, which was confirmed by concomitant cystoscopy. After dissection was complete, heamostasis was achieved and three stay sutures were taken to engage omentum in between. A drain was kept and abdomen was deflated. The Foley catheter was kept for 5 days. The drain was removed on the 2nd day and then the patients were discharged within a week. All of them had a smooth recovery.
Results: All of them were reviewed after 1 week for pain, residual deformity and nodular feel per vaginally. All had a great recovery and only one had a small nodule at left apical region, which was still painful. Three months later 2 were sexually active and had resumed all work. We have a follow-up of all three for now at 18 months and all of them are sexually active and doing well.
Conclusions: TVM has been a boon and also bane in majority of patients with prolapse and SUI. The rationale of using a foreign material is to give additional force to already week ligaments and muscle. However, it also has problems in 3 to 9% of cases in form of erosion, deformed vagina, nodular, lumpy vaginal wall, and intrusion in bladder, rectum and blood vessels. More than 30% mesh contract after 1 year, entrapping nerves, muscles, ligaments and producing areas of avascular necrosis, resulting either in local or total erosion. Local excision of local covering of mesh by using circumcised incision is described by many authors, but I feel, total removal of coagulum and then planting omentum is not well documented. The series is too small and follow-up is less than 2 years with us; however, it gives a clear-cut message that if such deformity exists, the correct therapy appears to be a complete separation and aiding a vascularised graft like omentum in between the organs.

MP-15.15
Doctor, Will I Be Dry? Factors Determining Recurrence After Vesicovaginal Fistula Repair
Abdullah A[1], **Javed A**[1], Syed S[2], Farooqui N[3]
[1]Liaquat National Hospital, Karachi, Pakistan; [2]Koohi Goth Fistula Hospital, Karachi, Pakistan; [3]Agha Khan Medical University, Karachi, Pakistan

Introduction and Objective: Vesicovaginal fistula (VVF) is an embarrassing complication of various obstetric and surgical procedures. Incidence of VVF is still high in developing countries. Most of the patients belong to socioeconomically deprived group so that they fail to seek proper management. Failure of surgical repair of VVF is quite distressing to both the patient and surgeon requiring careful evaluation of factors which may determine the outcome after surgical reconstruction of VVF. To evaluate various prognostic factors which determine outcome after surgical repair of VVF.
Materials and Methods: A retrospective analysis of the record of 640 patients who

underwent surgical repair of VVF during a period from Jan 2006 to June 2011. Multivariate analysis of the record was done using SPSS-19 software determining odds ratio with 95% confidence interval.
Results: There were 640 patients who underwent surgical repair of VVF. Overall success rate was 87.2%. Multivariate analysis determined that recurrence of VVF was significantly related to multiplicity (5 fold recurrence risk), pre-operative size of VVF (3 fold risk), secondary repair (3 fold risk) and etiology of the fistula (2 fold risk). Interpositon of flap and delayed reconstruction was related to successful surgical outcome. Age, parity, route of repair and location of fistula were not significant prognostic factors for recurrence.
Conclusions: Successful surgical repair of VVF require careful evaluation of various factors including number, size, previous attempts to surgical repair and etiology of VVF. One should opt for transabdominal route with delayed reconstruction and interposition of flap if above-mentioned factors are present.

MP-15.16
Urethra Sparing Cystectomy and Orthotopic Diversion in Females: Oncological Outcomes, Risk and Treatment of Urethral Recurrence
Babjuk M[1], Macek P[2], Hrbacek J[1], Soukup V[2], Brisuda A[1], Jarolim L[1], Hanus T[2]
[1]Dept.of Urology, Hosp. Motol, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic; [2]Dept.of Urology, VFN, 1st Faculty of Medicine, Charles University, Prague, Czech Republic

Introduction and Objective: Urethra sparing cystectomy with orthotopic diversion became a routine option in selected females with bladder cancer. The aim is to evaluate the long-term oncological outcomes in operated patients.
Materials and Methods: Between 1994 and 2011 51 females underwent urethra sparing cystectomy and ileal neobladder for muscle invasive or recurrent non-muscle invasive bladder cancer. In all patients, the biopsy from bladder neck and frozen section from urethral margins were performed without tumor positivity. Adjuvant chemotherapy was administered in all pN+ cases. The median follow-up was 4.99 years (0.33-17.1). Prognostic factors for urethral recurrence were considered. Kaplan-Maier method was used to estimate recurrence-free and overall survivals using log-rank tests.
Results: The mean age at the time of cystectomy was 57.7 years (32-72). Pathological staging was pT0 in 7, pTa-1 or CIS in 14, pT2 in 17 and pT3 in 13 cases, respectively. Lymph node positivity was detected in 6 cases. Five and 10 year overall and disease-free survivals were 78 and 59% and 71 and 68%, respectively. Survival was dependent from the extent of the disease. Local recurrence in pelvic region affecting the function of the neobladder outlet was detected in 2 cases, in 1 of them after systemic progression. Recurrence in urethra appeared in 2 patients (3.9%), in both cases was the original tumour located on the trigone or bladder base. The first female had originally 2 cm micropapillary carcinoma on the bladder base. She was treated with neobladder extirpation and re-diversion; she died 3 months later with metastatic disease. In the second case, five years after cystectomy for recurrent multiple non-muscle invasive baldder cancer, low grade non-invasive recurrence in the urethra was detected. It was treated with local excision only. The patient is without further recurrence after 2 years' follow-up.
Conclusions: Tumor recurrence after urethra sparing cystectomy and orthotopic diversion appeared within 10 years in 32% of females. Urethral recurrence was detected in 2 (3.9%) cases. In one of them it was treated successfully with local excision only.

MP-15.17
Clinical Procedures, Practices and Postoperative Outcomes in Surgical Repair of Female Genital Fistula: A Prospective Cohort Study
Ruminjo J[1], Barone M[1], Frajzyngier V[1,2]
[1]EngenderHealth, New York, USA; [2]Mailman School of Public Health, Columbia University, New York, USA

Introduction and Objective: To determine current clinical procedures, practices and fistula repair outcomes three months post-surgery.
Materials and Methods: We conducted a prospective cohort study between 2007 and 2010 at 11 sites providing female genital fistula repair in 5 countries. No new clinical methods were introduced. Data were collected on standardized forms during participants' hospital stay and at a 3 month follow-up visit. Clinical procedures and practices were documented. Fistula closure and residual incontinence among women with a closed fistula were measure three months post-surgery.
Results: A total of 1429 women were recruited into the study; 1274 of the women who had surgery for urinary fistula returned for 3 month follow-up. Some fistula characteristics were associated with failure of fistula closure and/or with residual incontinence including smaller bladder size, prior repair, severe scarring, partial urethral involvement of complete destruction /circumferential defect. The repairs were done during routine service in 57.8% and outreach services in 42.2%. 95.3%, of the repairs were by vaginal route, 4.0% abdominal and combined route in 0.8%. Single layer suture was used in 64.5% for bladder closure and 84.8 for vaginal mucosa, with martius flap in 3.4% and relaxing incision in 1.3%. Re-implantation of the ureters; needed in 33 cases; performed trans-vaginally in 12 and trans-abdominally in 22 of the women. Prophylactic antibiotics were given for 86.7% of the women. Post-op care included open drainage in 66.6% and closed drainage in 31.3, with a post op duration of catheterization median of 21 days (IQR 14–27). A water drinking regimen was prescribed in 88.0% of cases. No bladder training was prescribed for 48.7% of the women, but prolonging intervals was prescribed for 29.3% and intermittent clamping for 20.7%. At 3 month follow-up, fistula was closed in 81.7% and 79.15 were closed and dry. Of the women with closed fistula, 18.5% had residual incontinence.
Conclusions: The findings provide a picture of current clinical procedures and practices in surgical repair of female genital fistula. They highlight issues that potentially impact efficient and effective clinical care with regard to cost, efficacy and safety.

MP-15.18
Laparoscopic Vesicovaginal Fistula Repair: Report of Five Cases, Literature Review and Pooling Analysis
Simforoosh N, Lashay A, Soltani M, Ojand A, Nikkar M, Ahanian A, Hosseini Sharifi S
Shaheed Labbafinejad Medical Center, UNRC, Shaheed Beheshti Medical University, Tehran, Iran

Introduction and Objective: To assess the safety and efficacy of laparoscopic repair of vesicovaginal fistula (VVF) by literature review and pooling analysis and likewise, we are going to report the first experience of using this approach in a patient with history of radiotherapy.
Materials and Methods: Five patients with VVF including one patient with previous history of cervical cancer and radiation underwent laparoscopic repair

from August 2010 to Dec 2011 by one experienced surgeon. None of the patients had history of VVF repair and all of them underwent laparoscopic repair of VVF using O'Connor technique. The bladder was bivalved from dome to the fistula orifice by scissor. Fistula tract was excised and then vagina and bladder were dissected. Vagina and bladder were repaired by 2-0 vicryl suture using running pattern in one layer. At the end of procedure, 18 Fr urethral catheter was fixed and suprapubic tube was not used.

Results: Surgical procedure was uneventful in all of the patients and conversion to open did not happen. Mean operative time was 134 (100-185) minutes. Average blood loss was 300 (250-370)ml and no one required a blood transfusion. Mean hospital stay was 4 (3-6) days. Laparoscopic repair was successful in 4 cases at the mean 8 (2-15) months follow-up even in a patient with radiation history. Recurrence occurred in one case that underwent repeat laparoscopic repair, and two month follow-up revealed no fistula.

Conclusions: Laparoscopic surgery may be a good alternative for open approach for managing even complicated VVF, if this experience is performed by highly skilled surgeons.

Moderated Poster Session 16
Infections and Inflammation
Tuesday, October 2
15:15-16:45

MP-16.01
Prospective Randomized Trial of Povidone-iodine Prophylactic Cleansing of the Rectum Prior to Transrectal Ultrasound-Guided Prostate Biopsy

Abughosh Z[1], Margolick J[2], Goldenberg S[2], Taylor S[2], Gleave M[2], Chew B[2], Bowie W[3], Roscoe D[4], Machan L[5], **Black P**[2]
[1]Dept. of Surgery, Div. of Urology, Hashemite University, Zarqa, Jordan; [2]Dept. of Urologic Sciences, University of British Columbia, Vancouver, Canada; [3] Dept. of Medicine, University of British Columbia; [4]Dept. of Pathology and Laboratory Medicine, University of British Columbia; [5] Dept. of Radiology, University of British Columbia, Vancouver, Canada

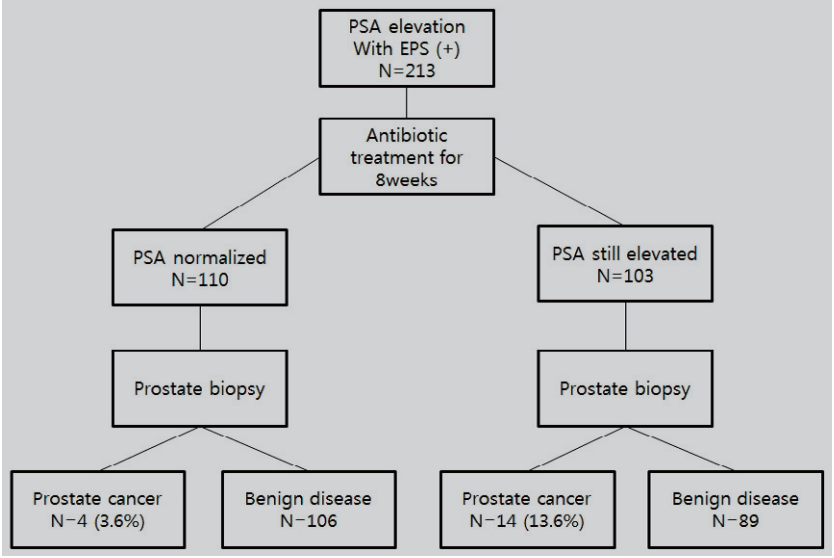
Introduction and Objective: Infectious complications (IC) after transrectal ultrasound-guided prostate biopsy (TRUSBx) include bladder and prostate infections in 3-11% and sepsis in 0.1-5% of patients. This trial investigated the safety and efficacy of Povidone-iodine prophylactic cleansing of the rectum prior to TRUSBx on the rate of IC.
Materials and Methods: There were 1069 men invited to participate in this trial, of whom 865 met criteria and were randomized prospectively to undergo TRUSBx with (n=421, "treatment") or without (n=444, "control") rectal cleansing. All patients delivered urine and rectal swab cultures prior to TRUSBx and received a 3 day course of ciprofloxacin prophylaxis. Patients measured their temperature for 48 hours after TRUSBx, delivered a urine culture after 48 hours, and completed a telephone interview after 7 days. The primary endpoint was the rate of IC, a composite endpoint consisting of: 1. fever >38.0°C, 2. urinary tract infection (UTI), or, 3. sepsis (standardized definition). Chi- square significance testing was performed for differences between groups, and a multivariable analysis was performed to assess risk factors for IC.
Results: IC was observed in 11 (2.6%) treated and 20 (4.5%) control patients (p=0.15). Sepsis was observed in 1.0% of treated and 1.6% control patients (p=0.55). Rectal swab cultures revealed ciprofloxacin resistance in 20% of patients, of whom 3.5% developed IC. On multivariate analysis, resistance to ciprofloxacin in the rectal swab culture (p<0.001) and a history of taking ciprofloxacin in the three months preceding TRUSBx (p=0.009) predicted IC. No significant adverse effects to rectal cleansing were observed.
Conclusions: Rectal cleansing with iodine prior to TRUSBx was safe but the 42% relative risk reduction of infections was not statistically significant. Ciprofloxacin-resistant flora were found frequently, but only a small fraction of these patients developed an infectious complication.

MP-16.02
A Prospective Study about the Detection Rate of Prostate Cancer in Patients with High Serum Prostate Specific Antigen in Consideration of Prostatic Inflammation and Antibiotics Treatment

Cho I[1], Cho S[1], Yoon C[2]
[1]Inje University Ilsanpaik Hospital, Koyang, South Korea; [2]Hanseo Hospital, Gyeongnam, South Korea

Introduction and Objective: The prostatitis is often a reason in case with high level of prostate-specific antigen (PSA). Antibiotics have been used to exclude the prostatic inflammation. In consideration of this situation, no one can ever be absolutely sure to exclude the prostate cancer. We studied the detection rate of prostate cancer with the patients that had the high PSA and the positive finding of expressed prostate secretion (EPS) value after antibiotics treatment for 8 weeks.
Materials and Methods: The study is conducted based on 213 patients with more than PSA value 4ng/ml and the positive value on EPS from January, 2004 to December, 2010. The patients were treated with fluoroquinolone antibiotics during 8 weeks, and the prostate biopsies were carried out in all cases. The detection rate of prostate cancer was analyzed according to the change of PSA values after antibiotics treatment.
Results: Of the 213 patients studied, the one group (103 of 213) had still elevated serum PSA value more than 4ng/ml after antibiotics treatment. Fourteen of 103 (13.6%) patients were diagnosed with prostate cancer. The other group (110 of 213) had normalized PSA value after treatment. Four of 110 (3.6%) patients were diagnosed with prostate cancer (Figure). Total prostate cancer detection rate was 8.5% in our subjects.
Conclusions: In case that the PSA level is increasing, if we make a diagnosis to exclude firstly the prostatitis and serial diagnostic procedure, it reduces unnecessary prostatic biopsy and helps to establish more specific treatment algorithm.

MP-16.02, Figure 1.



MP-16.03
Clustering of UPOINT Domains and Subdomains in Men with Chronic Prostatitis/Chronic Pelvic Pain Syndrome and Contribution to Symptom Severity

Shoskes D, Li J, Samplaski M
Glickman Urological and Kidney Institute, The Cleveland Clinic, Cleveland, USA

Introduction and Objective: The UPOINT system characterizes men with chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) according to 6

domains. Some domains have multiple possible criteria, but grouping of these criteria has never been validated. Domain clustering may give clues to etiology or treatment of individual phenotypes. We examined domain clustering patterns and the contribution of individual domains and subdomains to symptom severity.
Materials and Methods: Records were reviewed from 220 CP/CPPS patients, including 120 characterized by UPOINT alone and 100 by subdomains: Urinary (Voiding, Storage), Psychosocial (Catastrophizing, Depression), Organ-Specific (Bladder, Prostate), Infection (Prostatic, Urethral), Neurologic/Systemic. The Chronic Prostatitis Symptom Index (CPSI) was used to measure symptom severity.
Results: For Urinary, Psychosocial, Infection and Neurologic/Systemic, subdomains had similar incidences; however, Organ-Specific-Prostate was more common than Organ-Specific-Bladder (51% vs 33%). By cluster analysis with multidimensional scaling, Urinary, Organ-Specific and Tenderness clustered together, as did Neurologic, Infection and Psychosocial. Of subdomains, Organ-Specific Prostate and Bladder diverged but the others clustered together. Domains that significantly contributed to the total CPSI were Urinary, Psychosocial and Tenderness but only Psychosocial contributed independently to the QOL subscore.
Conclusions: UPOINT domain criteria capture a homogeneous group for each domain except Organ-Specific in which Bladder and Prostate diverge. The Organ Specific Bladder subdomain may identify a subset of these men with interstitial cystitis/painful bladder syndrome. Clustering of domains specific to the pelvis (Urinary, Organ-Specific, Tenderness) versus systemic (Neurologic, Infection, Psychosocial) suggests 2 patient populations who may differ in pathophysiology and treatment response. The primary drivers of pain in CPPS are pelvic floor tenderness, depression and catastrophizing.

MP-16.04
Prevalence of Multiple Types of Genital Human Papillomavirus Infections in Men: A Study in Poland
Walczak L[1], Dutkiewicz S[2,3], **Majewski S**[1], Jablonska S[1]
[1]Dept. of Dermatology and Venereology, Medical University of Warsaw, Warsaw, Poland; [2]Clinical Center of Genital Infection Warsaw Medical University, Warsaw, Poland; [3]Dept. of Neoplasm Prevention and Epidemiology, JK University, Kielce, Poland

Introduction and Objective: Anogenital infections with mucosotrophic and nearly 40 types of human papillomaviruses (HPV) are sexually transmitted. Their prevalence in males is comparable to females but HPV infection in men is largely unknown. Since such information is needed to perform prevention strategies, the goal our study was to estimate prevalence of type-specific genital HPV infection in men and the associated factors.
Materials and Methods: Within a multicenter clinical preventive trial, penile sampling of 826 (100%) uncircumcised and sexually active males (aged 25 - 69 yrs) residing in Poland was studied. Despite routine clinical examination, external genitalia were examined using peniscopy. A cytologic smear was obtained from the urethra. DNA HPV in smears was detected by hybrid capture – HC2 and in the biopsy material by means of polymerase chain reaction (PCR).
Results: Twenty-three HPV types were detected, including 11 high-risk oncogenic types (53- 6.4% men) and in 65 (7.87%) individuals both oncogenic and nononcogenic simultaneously - altogether 118 (14.3%) and also 12 low-risk multiple nononcogenic types (248-30% men). Penile HPV prevalence was approximately 26.8%. In 53 (6.4%) cases we detected multiple oncogenic types (single HPV16 only in 17 cases -2.1%). Penile HPV DNA detection did not appear to be associated with age. Our analyses also suggested a lower prevalence of HPV infection among male participants who reported consistent condom use, and fewer sexual partners. In men, having a history more than 10 sexual partners over their lifetime increased likelihood of detecting HPV DNA. The clinical significance of multiple HPV infections (with both high-risk and low-risk types) is unknown but it is possible that non-oncogenic HPV types contribute to enhanced keratinocyte proliferation resulting in facilitation of oncogenic HPV infection.
Conclusions: Data from our study showing a high prevalence of HPV infection in Polish population of men will be helpful for future studies on HPV transmission dynamics. Recently it has established that the HPV vaccines elicit robust antibody responses in men and is safe and efficacious against HPV infection and external genital lesions among young men.

MP-16.05
Clinical Trial of Faropenem Against Acute Uncomplicated Cystitis in Women, Randomized, Open Labeled, Comparative Multicenter Study
Hamasuna R[1], Tanaka K[2], Hayami H[3], Yasuda M[4], Takahashi S[5], Kobayashi K[6], Kiyota H[7], Yamamoto S[8], Arakawa S[2], Matsumoto T[1]
[1]University of Occupational and Environmental Health, Kitakyushu, Japan; [2]Kobe University Graduate School of Medicine, Kobe, Japan; [3]Kagoshima University Hospital, Kagoshima, Japan; [4]Gifu University, Gifu, Japan; [5]Sapporo Medical University, Sapporo, Japan; [6]Hiroshima University, Hiroshima, Japan; [7]Katsushika Medical Center, Jikei University, Tokyo, Japan; [8]Hyogo College of Medicine, Nishinomiya, Japan

Introduction and Objective: Faropenem (FRPM) is the only oral penem used in Japan and this antimicrobial has low inducibility to be resistant. In the present study, efficacy of FRPM was investigated against acute uncomplicated cystitis (AUC) in women to determine the optimal periods of administration and to know the antimicrobial activities of FRPM to uropathogens.
Materials and Methods: A randomized, open labeled, comparative multicenter study was conducted on women with AUC at 35 participating institutions. FRPM with 200 mg, p.o. three times per day was administered to patients allocated to either the 3-day or 7-day administration group using the central registration method; a registration form of entried patients were faxed and allocated by the clinical trials office (CREC Net, Kitakyushu, Japan). Bacteriological investigation was conducted at Kyurin Corporation (Kitakyushu, Japan). Bacteriological and clinical efficacies were evaluated 5 to 9 days post-administration of FRPM. This study was approved by the ethics committee of CREC Net, Fukuoka, Japan.
Results: A total of 200 patients were registered between May 2010 and May 2011 (3-day administration: n=97; median age, 49 years old; age-range, 20-80 years. 7-day administration: n=103; median age, 47 years old; age-range, 21-81 years). By the exclusion criteria, 74 patients were excluded and the microbiological and clinical outcomes in 126 patients were analyzed. Microbiological outcome revealed that 7-day administration (n=64) was significantly more effective than 3-day administration (n=62) (eradication: 84.4% vs. 62.9%; persistence: 7.8% vs. 24.2%; replace: 7.8% vs. 12.9%; p=0.018). The clinical outcome tended to be greater in 7-day administration than in 3-day administration, but differences were not significant. From the urine, 185 bacterial strains were isolated and *E. coli*

was occupied 67.2%. The minimum inhibitory concentrations $(MIC)_{90}$ of cefcapene, FRPM, fosfomycin and levofloxacin for 119 *E. coli* strains were 0.5, 1, 4 and 1 μg/ml, respectively. FRPM proved effective against resistant strains comprising 2 strains in which the MICs of cefcapene were ≥4 μg/ml and 5 strains in which the MICs of levofloxacin were ≥8 μg/ml.
Conclusions: Seven-day administration of FRPM provides optimal administration period for AUC and FRPM was effective to resistant *E. coli* against cefcapene or levofloxacin.

MP-16.06
Prostatic Abscess Management Revisited in 2012: Transrectal Ultrasound Guided Aspiration of Prostatic Abscess Under Local Anesthesia: Ganga Ram Needle
Khanna S, Mittal S
Sir Ganga Ram Hospital, New Delhi, India

Introduction and Objective: Prostatic abscess is an unusual condition. The purpose of study was to review and assess the efficacy and safety of transrectal ultrasound guided aspiration of prostatic abscess under local anesthesia.
Materials and Methods: We retrospectively reviewed the medical records of all fifteen patients diagnosed and treated for prostatic abscess in the last one year and half. All patients were suspected clinically. TRUS was used for diagnosis in all cases. MRI was also done in fourteen patients. All patients had TRUS guided aspiration for management of prostatic abscess. The material aspirated was sent for gram stain, culture/sensitivity, AFB smear and culture, fungal smear and culture. Data collected regarding etiology, clinical features, investigations and treatment was compared with the available literature. We have a specific 14 gauze needle for aspiration made indigenously which works very well for these cases and done after instilling local anaesthesia in the form of Xylocaine jelly half an hour before the procedure
Results: All 15 patients presented with fever, and irritative voiding symptoms. Only 6 patient had a positive initial urine culture; Organisms cultured were, E.coli, Mycobacterium tuberculosis, salmonella typhi Staphylococcus aureus. The age of patients ranged from 40-78 yrs (mean 55). Out of the fifteen patients, fourteen were diabetics. TRUS revealed one or more hypoechoic areas within the prostate in all the patients. Successful treatment of prostatic abscess with TRUS guided needle aspiration was done in fourteen patients. One patient underwent TURP. Mean hospitalization time was 7.4 days, and most frequent bacterial agent was E.coli.
Conclusions: High index of suspicion prostatic abscess is very important. TRUS is useful in diagnosis as well as in guidance for aspiration of such abscesses. MRI offers excellent anatomy and information on periprostatic extension. TRUS-guided needle aspiration is an effective method for treating prostatic abscess. Sometimes patient may require repeat aspiration which can be done with minimum morbidity. Most of the patients are diabetics and usually grow E. coli. Antibiotics which cover E. coli. should be used empirically. Always send pus for culture so that unusual organisms are not missed.

MP-16.07
To Evaluate the Current Role of DNA PCR in the Early Diagnosis of Genitourinary Tuberculosis: The New Gold Standard for Diagnosis
Khanna S, Mittal S
Sir Ganga Ram Hospital, New Delhi, India

Introduction and Objective: To evaluate the role of Polymerase chain reaction (PCR) in the early diagnosis of genitourinary tuberculosis (GUTB) and to compare its sensitivity and specificity with conventional methods and remove the MYTH that PCR for tuberculosis is not a good test.
Materials and Methods: The study was carried out from January 2005 to August 2011 in 256 patients with a clinical suspicion of GUTB. Their clinical features and investigation results were evaluated. Early morning sample of urine or semen or pus were sent for five consecutive days with maintenance of cold temperature. Diagnosis of GUTB was made on the basis of positive AFB staining/AFB culture/PCR and improvement in symptoms and pyuria after starting anti tubercular treatment (ATT). The diagnostic yield of urinary PCR for mycobacterium tuberculosis and its sensitivity and specificity in comparison with routine urine AFB staining and culture were assessed.
Results: There were 130 males and 126 female patients, with a mean age of 40.6 years. In our study irritative voiding symptoms were present in - 80% patients and hematuria in -14 %. About 37% patients had recurrent UTI. Constitutional symptoms like fever were present in -19%. Out of 256 these 216 patients, were found to have GUTB on the basis of positive PCR/ positive AFB culture/staining and improvement in symptoms and pyuria after starting anti tubercular treatment. Mycobacterium tuberculosis was grown on culture in 74 patients and of these 51 patients MTb complex and in 23 patients mycobacterium other than tuberculosis (MOTT) was isolated. DNA PCR was positive in 193 of 256 clinically suspected cases. Sensitivity of PCR in our study was 89% and specificity was 88%. Sensitivity of AFB staining was 9% and culture was 35%.
Conclusions: From this study it is evident that PCR is rapid, sensitive and specific diagnostic method, which avoids delay in starting treatment and should be done in all patients with clinical suspicion of GUTB. AFB urine culture has been wrongly labeled as gold standard test for decades. Is it 100% positive in all? We all know that and still it was labeled as the gold standard. It is time for a new gold standard.

MP-16.08
Rate of Urine Positive Culture and Double-J Catheters Bacterial Colonization on the Basis of Bacteria DNA Analysis
Klis R[1], Szymkowiak S[1], Madej A[1], Forma E[2], Brys M[2], Lipinski M[1], Rozanski W[1]
[1]2nd Dept. of Urology, Medical University of Lodz, Lodz, Poland; [2]Dept. of Cytobiochemistry of the University of Lodz, Lodz, Poland

Introduction and Objective: Long-term urinary stenting is associated with bacterial colonization of both catheter surface and urine. The aim of the trial was to estimate the relationship between bacterial colonization of the Double-J catheter, and the microorganisms cultured from urine. We decided to use DNA analysis of the catheter bacterial colonization as this method is thought to possess the highest diagnostic sensitivity.
Materials and Methods: Sixty patients, who had Double-J polyurethane catheters inserted, participated in the study. All the participants had their midstream urine samples taken prior to the stent insertion and removal. Negative urine culture before catheterization was mandatory to participate in the study. Double-J catheters were removed and then divided under aseptic conditions into pelvical, ureteral and vesical sections. The patients were assigned into three subgroups, according to stenting duration. Bacterial and fungal DNA were identified using electrophoresis in polyacrylamide gel with a denaturing gradient (PCR-DGGE).

Relationship of the catheter genetic evaluation and urine culture was estimated.
Results: Urine cultures were positive in only 8 patients, while Double-J catheter analyses were positive in all cases. In 2 cases one type of microorganism was isolated from the stent surface. The remaining 58 catheters were colonized by more than one pathogen, including 12 stents with two species and 46 stents with three types of pathogens. As was mentioned above, catheters were divided into three parts that were separately analyzed. In case of 32 stents all the three sections were colonized by the same pathogens. In 6 cases catheter cultures revealed two different microorganisms isolated from the different sections while 22 stents were colonized by three different bacteria species. Urine and stent cultures were consistent in 5 cases. In 3 cases urine culture and stent analysis were not consistent.
Conclusions: Double-J catheter retention in the urinary tract is associated with an extremely high risk of bacterial colonization, while the risk of urine infection is about 8-fold lower. There is a great inconsistency between urine infection and catheter colonization, indicating a low predictive value of urine culture for estimating stent colonization.

MP-16.09
Comparative Analysis of Microbiological Spectrum of Prostatic Secretion Determined by the Routine and Extended Microbiological Analysis in Chronic Bacterial Prostatitis
Kogan MI[1], Naboka JL[2], Ibishev HS[1], Ferzauli AH[1], Gudima IA[2], Shiranov KA[1]
[1] Dept of Urology, Rostov State Medical University, Rostov on Don, Russia; [2]Rostov State Medical University, Dept of Microbiology, Rostov on Don, Russia

Introduction and Objective: The major causative pathogens of chronic bacterial prostatitis (CBP) are Enterobacteria. The important role of gram-positive bacteria, particular, coagulase-negative staphylococcus (CNS) has been reported in the recent years. The causative role of the other microorganisms and its involvement in CBP pathogenesis remains unclear.
Materials and Methods: Bacteriological examination of urine in 170 men with CBP (mean age was 30.95.8) prior to starting of antibacterial treatment was performed. Obstruction was due to stones (60.6%) and ureteropelvic junction obstruction (39.6%). The duration of the disease was 3.51.5 years. Bacteriological urine analysis using standard (blood agar and MacConkey agar) and extended amount of the 9 mediums (Mac Conkey, HiCrome Candida Differential Agar, HiCrome Enterococcus Agar, HiCrome Aureus Agar Base, blood agar, made on the basis of Mueller Hinton Agar with addition of sheep erythrocytes) was performed. For nonclostridial anaerobes isolation medium Blaurokka, Shaedler Agar and broth, Bacteroides Bile Esculinum Agar were used.
Results: Using the standard mediums we isolated 72 types of microorganisms in prostatic secretion, while using extended amount of mediums we determined 851 types ($p<0.05$) (table.1). In all cases of CBP the extended microbiological studies detected mixed bacterial infection with predominance of CNS and other gram-negative bacteria and nonclostridial anaerobes (64.7%). In 33.4% cases combination of Enterobacteria and nonclostridial anaerobes was detected, while combinations of the other types of gram-positive bacteria with nonclostridial anaerobes were found less frequently (11.2% cases). The proportion of the Enterobacteria was low (16.4%), and they were isolated in combinations with the other types bacteria, frequently with CNS and the other types of gram-positive bacteria (8.2%). The mean prostatic secretion bacteria level for non-clostridial anaerobes was 10^3CFU/ml, and CNS was 10^3CFU/ml.
Conclusions: In prostatic secretion of patients with CBP non-clostridial and the different species of gram-positive bacteria and/or CNS dominate, while proportion of the Enterobacteria is low. In all cases bacteria were isolated in associations with the other bacteria. The mean prostatic secretion bacteria level for recognized pathogens (Enterobacteria) is lower, than for non-clostridial anaerobes. Debated question remain about causative pathogens of inflammatory process.

MP-16.10
Comparative Analysis of Microbiological Spectrum from Urine Culture of Patients with Acute Pyelonephritis Using Standard and Extended Microbiological Examinations
Kogan MI[1], Naboka JL[2], Gudima IA[2], Ibishev HS[1], Gazayev ZI[1], Shiranov KA[1]
[1]Dept. of Urology, Rostov State Medical University, Rostov on Don, Russia; [2]Dept. of Microbiology, Rostov State Medical University, Rostov on Don, Russia

Introduction and Objective: Role of other microorganisms, than Enterobacteria in acute obstructive pyelonephritis development is debated or ignored. For the first time we showed the causative role of peptococcus in experimental model of acute obstructive pyelonephritis (Eur Urol Suppl 2011; 10(2):162).
Materials and Methods: Bacteriological urine analysis in 33 female with acute obstructive pyelonephritis (AOP) (mean age was 25.42.2) prior to starting of antibacterial treatment was performed. Obstruction was due to stones (60.6%) and ureteropelvic junction obstruction (39.6%). The duration of the disease was 3.02.0 days. Bacteriological urine analysis using standard and extended amount of the 9 mediums (Mac Conkey, HiCrome Candida Differential Agar, HiCrome Enterococcus Agar, HiCrome Aureus Agar Base, blood agar, made on the basis of Mueller Hinton Agar with addition of sheep erythrocytes) was performed. For nonclostridial anaerobes isolation medium Blaurokka, Shaedler Agar and broth, Bacteroides Bile Esculinum Agar were used.
Results: Using the standard mediums we isolated 57 types of microorganisms in urine, while using extended amount of mediums we determined 135 types ($p<0.05$) (table.1). In all cases of AOP the extended microbiological studies detected mixed bacterial infection with predominance of Enterobacteria/CNS combination and/or other gram-positive bacteria combined with nonclostridial anaerobes

MP-16.09, Table. 1.

Microorganisms	Types of microorganisms (%)	
	Standard mediums	Extended mediums
Enterobacteriaceae	16.4	16.4
Coagulase-negative staphylococci (CNS)	55.9	82.9
Corynebacterium sp.	12.3	70.6
E.faecalis	35.9	41.8
C.albicans	1.2	2.3
C.krusei	0	3.0
Nonclostridial-anaerobic bacteria	0	100.0

(45.6%). In 33.4% cases combination of Enterobacteria and nonclostridial anaerobes was detected, while in 18% patients association of nonclostridial anaerobes, Candida sp., and CNS and/or another types of gram-positive bacteria was found. Conversely, in cases with using of the standard medium the mixed infection was seen only in 57.5% cases. The mean bacteriuria levels, determined by extended microbiological studies were 10^5CFU/ml and 10^6CFU/ml for aerobes and nonclostridial anaerobes, respectively.
Conclusions: Using the standard mediums we can determine only limited microorganism spectrum, which compromise 42.2% of microorganisms, detected using extended analysis. Enterobacteria and nonclostridial anaerobes dominate in urine in patients with AOP. In all cases we isolated from 1 to 3 types of nonclostridial anaerobes using urine bacteriology. In 24.4% patients Candida sp. was detected in urine and its role in AOP pathogenesis is underestimated. Cause of inflammatory process in mixed infection remains unknown and, also, whether AOP can be caused by microbiological association or not.

MP-16.11
Comparison of the Efficiency of the Surgical Treatment for Genital Papilloma: Laser Versus Electrocoagulation
Kulchavenya E
Novosibirsk Research TB Institute, Novosibirsk, Russia

Introduction and Objective: Genital papilloma is usual sexual transmitted disease, contagious both for male and female patients. The treatment is based on the destruction of the papilloma, by chemical or surgical method. Independently of technique, the frequency of the recurrence is very high.
We have directly compared the results of electrocoagulation with outcomes of laser destruction with laser "Dornier".
Materials and Methods: There were 27 patients enrolled in study: 12 women and 15 men in age between 14 and 48 years. Ten of them were new revealed patients, but another 17 had relapse of the disease after chemical or electrical destruction or after surgical excision. Eleven patients were treated with electrocoagulation, and 16 with Nd:YAG laser "Dornier" (wavelength 1064 nm, power 10 watt). Intraoperative and perioperative factors were assessed. The patients were followed at 1, 3, 6 and 12 months following the procedure.
Results: There were no significant differences between the patient groups for any preoperative parameter. Laser coagulation for genital papilloma was significantly more effective: the need of analgetics in postoperative period was less in 2,4 times, the skin scar was minimum. The follow-up was 12 months with no recurrence. In the same time, 6 patients after electrocoagulation had relapsed during the first year after operation.
Conclusions: Laser "Dornier" is optimal for treatment of genital papilloma.

MP-16.12
Bladder Tuberculosis: How to Prevent Complications
Kulchavenya E, Kholtobin D, Brizhatyuk E
Novosibirsk Research TB Institute, Novosibirsk, Russia

Introduction and Objective: Bladder TB (BTB) is one of the most serious complications of renal TB, and it is diagnosed in 45.6% among urogenital tuberculosis (UGTB). Inadequate treatment of BTB resulted in severe complications (shrinkage of the bladder).
Materials and Methods: There were 149 patients with BTB enrolled in the study. Seventy-six patients (1st group) were treated with standard TB therapy, and 73 patients (2nd group) received modified therapy, included trospium chloride.
Results: Standard therapy was insufficient in more than half of the cases: 42.1% were cured, 57.9% developed complications: posttuberculous cystalgia (36.8%) and microcystis (21.1%). There were 16 patients with microcystis underwent enterocystoplasty. Incontinence developed in 8 patients (19.1%): three women (average age 60.3 years) and five men (average age 66.4 years); this symptom did not improve after chemotherapy. The 2nd group of patients responded in a favourable manner to the combined treatment: urinary frequency reduced about 75%, bladder capacity increased an average of 4.7 fold. Recovery was reached in 84.3%. Posttuberculous cystalgia developed in 15.7% only. None of the patients developed microcystis after the combined treatment. In the 2nd group also 8 patients had incontinence; among them five reported no urgency urinary incontinence episodes after 3 months therapy with trospium chloride. Tolerance to the treatment was good: only one patient had light side effect (mouth dryness).
Conclusions: Bladder tuberculosis is always secondary to renal TB, however quite often renal TB may start with voiding symptoms such as dysuria, frequent and painful urination and incontinence. Urinalysis reveals – pyuria, erythrocyturia and growth of unspecific bacteria is possible. In regions with endemic tuberculosis all patients with acute cystitis should be evaluated as suspicious to TB. Antituberculous therapy in combination with trospium chloride is high effective for bladder TB patients.

MP-16.13
Immunoprophylaxis of Relapses of Urogenital Tract Infection
Kulchavenya E, Brizhatyuk E, Kholtobin D, Osadchiy A, Khomyakov V
Novosibirsk Research TB Institute, Novosibirsk, Russia

Introduction and Objective: Urogenital tract infections (UTI) are widespread. Mostly they are caused by E. Coli and about 60% have recurrent course. The results of a standard antibiotic therapy often are insufficient.
Materials and Methods: There are 127 patients with recurrent UTI enrolled in the study. Twenty-three men had chronic bacterial prostatitis, 75 women had recurrent cystitis and 29 women chronic pyelonephritis. Relapses of UTI were on average 3.4 ± 0.8 per year. At the start of the trial, all patients were in acute recurrence, and were therefore treated with antibiotics. After confirming that their urine or prostate secretion was sterile, patients were treated for 1 month with 1 capsule daily of *Escherichia Coli* extract Uro-Vaxom and observed for 2 years. Just after UTI episode occurring, the second course of Uro-Vaxom was prescribed with the same scheme. The degree of the disease was assessed with complex scale every two months as well as a quality of life (QoL).
Results: On base-line patients had 40.1 score, after aetiotropic therapy: 23.4 score and after first course of Uro-Vaxom: 12.1 score on average. After first course of Uro-Vaxom, 86.7% of patients had "cold period" during more than 6 months. After second course of Uro-Vaxom 37 patients (29.2%) had a "cold period" for 6 months, 62 patients (48.8%) for 9 months and 28 patients (22.0%) had no recurrence during a year. UTI episode decreased from 3.4 ± 0.8 to 0.4 ± 0.2 per year, QoL increased from 4.7 ± 1.0 up to 1.3 ± 1.1 score. Alongside with high efficiency Uro-Vaxom showed a good tolerance, no side effect was registered.
Conclusions: The number of recurrence of cystitis, prostatitis and pyelonephritis was significantly lower after two consecutive courses of Uro-Vaxom. Immunoprophylaxis of relapses of UTI with Uro-Vaxom is highly effective and well-tolerated.

MP-16.14

Anti-Tuberculous Drugs as a Reason for Ejaculatory Disorders

Kulchavenya E, Brizhatyuk E, Kholtobin D, Osadchiy A, Khomyakov V
Novosibirsk Research TB Institute, Novosibirsk, Russia

Introduction and Objective: The sexual life is an integral part of a full and happy life. A patient with pulmonary tuberculosis (TB) suffers from his disease itself as well as from different complications. It is known, that 42-67.3% of patients with diabetes and high blood pressure have sexual dysfunction. In Siberia there is an epidemic of tuberculosis, and the majority of TB patients are young men for whom sexual viability is very important. The aim was to estimate the frequency of ejaculatory disorders in men suffering from tuberculosis and to determine the effect of TB treatment on the ejaculation.
Materials and Methods: There were 98 pulmonary TB patients enrolled in study. The intravaginal latency time before onset of TB was estimated retrospectively and in 3 months of anti-TB therapy.
Results: Before anti-TB therapy 14.3% of pulmonary TB patients had ejaculatory disorders: 10.2% had premature ejaculation, and 4.1% delayed ejaculation. The rest, 85.7% of patients, had normal ejaculation. After three months of the therapy with 4 anti-TB drugs (isonazid, rifampicin, pyrazinamid and streptomycin) the proportion was changed significantly. The share of patients with normal ejaculation decreased to 61.2%. On contrary, frequency of premature ejaculation increased twice (20.4%), and delayed ejaculation 4.5 times (18.4%).
Conclusions: Proportion of ejaculatory disorders in patients with pulmonary TB before a start of anti-TB therapy was the same as in population as whole. So, tuberculosis as a disease doesn't damage an ejaculatory function. Three months of standard anti-TB therapy with four drugs significantly worsened the ejaculatory function of patients. The high growth of delayed ejaculation may be explained by neurotoxicity of anti-TB drugs. So, tuberculosis as a disease doesn't damage an ejaculatory function, but the treatment of tuberculosis does. A special pathogenetic therapy is necessary to prevent this complication.
Previously accepted and presented at ESSM Congress

MP-16.15

The Efficacy of Levofloxacin or Ciprofloxacin in Management of Chronic Non-Bacterial Prostatitis

Lai Y[1,2], Cheng C[1,2], Hsueh T[1,2], Chiu Y[1,2], Chen S[1,2], Chiu A[1,2]
[1]Div. of Urology, Dept. of Surgery, Taipei City Hospital, Taipei, Taiwan; [2]Dept. of Urology, National Yang-Ming University, School of Medicine, Taipei, Taiwan

Introduction and Objective: To evaluate efficacy of 6-week levofloxacin and ciprofloxacin in patients with chronic non-bacterial prostatitis (CNBP) and to compare the result with the control group.
Materials and Methods: Male patients with CNBP, based on criteria of National Institutes of Health (NIH),were randomized to groups of 6-week levofloxacin (500mg daily, group 1), ciprofloxacin (250mg twice daily, group 2) and ciprofloxacin (500mg twice daily, group 3), and control group (no antibiotics, group 4). NSAIDs (diclofenac 500mg) twice daily and alpha-blocker (tamsulosin 0.2mg) twice daily were prescribed for all patients. Effects of treatment were assessed at 3, 6 weeks after medication according to the National Institutes of Health Chronic Prostatitis Symptoms Index (NIH-CPSI).
Results: There were 215 patients randomized into 4 groups (51 in group 1, 53 in group 2, 61 in group 3, and 50 in group 4). The NIH-CPSI score revealed statistically significant differences among group 1, group 2, group 3 and group 4 at the 3-week assessment ($P=0.01$). At the 6-week assessment, there was no significant differences between group 2 and group 4 ($P>0.05$). Statistically significant differences were found among group 1, group 3 and group 4 ($P<0.001$). The NIH total score and three major domains were significantly different between group 1 and group 3 at the 3- and 6-week assessment. ($P=0.01$) But the difference between group 2 and group 3 at the end of treatment was not significant ($P=0.05$).
Conclusions: Levofloxacin reduces NIH-CPSI scores more in patients with CNBP compared to ciprofloxacin. Levofloxacin was superior to ciprofloxacin in decreasing NIH-CPSI scores.

MP-16.16

Prostatic Penetration of Meropenem in Humans, and Dosage Considerations for Prostatitis Based on Site-Specific Pharmacokinetic-Pharmacodynamic Evaluation

Nishikawa G[1], Ikawa K[2], Nakamura K[1], Yamada Y[3], Zennami K[1], Morikawa N[2], Sumitomo M[1]
[1]Dept. of Urology, Aichi Medical University School of Medicine, Aichi, Japan; [2]Dept. of Clinical Pharmacotherapy, Hiroshima University, Hiroshima, Japan; [3]Dept. of Urology, Gifu Social Insurance Hospital, Gifu, Japan

Introduction and Objective: Meropenem is a therapeutic option for the treatment of prostatitis, especially when the patient is refractory to other beta-lactams or intolerant quinolones. However, its prostatic penetration has not been investigated in detail, and its pharmacokinetics-pharmacodynamics (PK-PD) at this site has not been evaluated. The aims of this study were to investigate the penetration of meropenem into human prostate tissue, and to assess to meropenem regimens for prostatitis by performing site-specific PK-PD evaluation.
Materials and Methods: Patients with prostatic hypertrophy ($n = 49$) prophylactically received a 0.5 h infusion of meropenem (250 or 500 mg) before transurethral resection of the prostate. Meropenem concentrations in plasma (0.5-5h) and prostate tissue (0.5-1.5h) were measured chromatographically. The concentration data were analyzed pharmacokinetically with a three-compartment model, and used to estimate the drug exposure time above the minimum inhibitory concentration for bacteria ($T > MIC$, % of 24 h) in prostate tissue, an indicator for antibacterial effects at the action site, for six meropenem regimens (250 mg or 500 mg; once daily, twice daily or three times daily; 0.5 h infusions).
Results: The prostate tissue/plasma ratios were 16.6% for the maximum drug concentration and 17.7% for the area under the drug concentration-time curve, and they were irrespective of the dose. Against MIC distributions for clinical isolates of *Escherichia coli*, *Klebsiella species* and *Proteus species*, 500 mg once daily achieved a >90% probability of attaining the bacteriostatic target (20% $T > MIC$) in prostate tissue, and 500 mg twice daily achieved a >90% probability of attaining the bactericidal target (40% $T > MIC$) in prostate tissue. However, against *Pseudomonas aeruginosa* isolate, all tested regimens did not achieve a >90% probability of attaining the bacteriostatic and bactericidal targets.
Conclusions: This study investigated the penetration of meropenem into human prostate tissue, and suggested that 500mg regimens were appropriate against the major bacteria causing prostatitis.

MP-16.17

The Effect of Intraureteric Induction of Escherichia Coli on Stimulation of the Expression of HMGB1 in Proximal

Tubular Epithelial Cells of Lepus Sp. Rabbit from New Zealand Strain
Purnomo B, Winarsih S, Nugroho D
School of Medicine, Brawijaya University/Saiful Anwar General Hospital, Malang, Indonesia

Introduction and Objective: Urinary Tract Infection (UTI) is one of the most common infection that affects humans and infects millions of people each year. The UTI which is generally caused by *Escherichia coli* is a result from bacterial lipopolysaccharide (LPS) induction. This induction will stimulate cells like monocytes and macrophages to actively release pro-inflammatory cytokines. High Mobility Group Box 1 (HMGB1) is one kind of late mediator, also an important marker of sepsis and inflammation and theoritically can stimulate the release of pro-inflammatory cytokines. The aim of this study was to determine the effect of intraureteric induction of *E. coli* on stimulaion of the expression of HMGB1 in proximal tubular epithelial cells of kidney in *Lepus sp*. Rabbit from New Zealand strain.
Material and Methods: This research used true experimental design, done on 24 male *Lepus sp*. rabbits and were randomly divided into 6 groups. K-negative group (K1) was not given any exposures and ligation, K-positive group (K2) was ligated without injected by *E. coli.* Each group of exposures was injected by *E. coli*, ligated, and incubated for a day, 3 days, 5 days, 7 days. The measured parameter was the level of HMGB1.
Results: Statistical analysis with one-way Anova method followed by Post Hoc Tukey test, showed that there were differentiations between control groups and treatment groups ($p<0.05$).
Conclusions: Intraureteric induction of *E. coli* and incubation for 1, 3, 5, and 7 days can increase the level of HMGB1 in proximal tubular epithelial cells of *Lepus sp*. strain New Zealand.

MP-16.18
Prevalence of Prostatitis in Men Treated with Prostatectomy (Open Prostatectomy, Transurethral Resection of Prostate) for Benign Prostatic Hyperplasia Induced Bladder Outlet Obstruction
Salem H[1], **El Fayoumy H**[1], Shaker H[1], Lotfi A[1], Anis E[2]
[1]Dept. of Urology, Kasr Al Ainy Hospital, Cairo, Egypt; [2]Dept. of Pathology, Kasr Al Ainy Hospital, Cairo, Egypt

Introduction and Objective: To evaluate the prevalence of prostatitis in 2296 patients who had undergone prostatectomy (open prostatectomy, transurethral resection of prostate TURP) for benign prostatic hyperplasia (BPH).
Materials and Methods: Clinical parameters and pathology records were reviewed for 2296 patients who had undergone prostatectomy (488 open prostatectomies and 1808 TURPs) for BPH. The clinical and radiological parameters included: patient age, symptoms, digital rectal examination, and serum total PSA, abdominal and pelvic ultrasound, size of resected adenoma of the prostate, and transrectal ultrasound for patients with high PSA and or DRE. The pathological parameters included: BPH nodules, cancer prostate, and or associated prostatitis. The association of prostatitis with BPH and cancer prostate was assessed.
Results: There were 2236/ 2296 patients diagnosed as BPH (96.2%); 60 /2296 patients had incidentally discovered adenocarcinoma of the prostate (3.8%). Prostatitis was evident in 76.1% of 2296 patients 74% of BPH patients and 92% of prostate cancer patients had prostatitis in their pathology specimens with statistically significant correlations between prostatitis and both BPH and prostate cancer separately ($P<0.05$). The incidence of prostatitis was higher in patients with BPH with AUR (82.5%) than in those patients with BPH who were not in retention at the time of surgery (68%) ($P < 0.01$). Prostatitis was significantly associated with prostatectomy for AUR than prostatectomy for LUTS.
Conclusions: These data suggest a high association of prostatitis in men treated for prostate induced bladder outlet obstruction. The causes of such high prevalence require more demographic and epidemiologic studies.

MP-16.19
The Prevalence and Risk Factors of High-Risk Human Papillomavirus Types in Genital Condylomata Acuminata of Korean Male
Seo J, Park S, Jung G
Smile Jung's Urology Clinic, Busan, South Korea

Introduction and Objective: Genital condylomata acuminata is an epithelial proliferative lesion caused by human papillomavirus (HPV) infection. HPV have been divided into low-risk and high-risk types based on their oncogenic potential. We analyzed the HPV types and evaluated the prevalence of high risk HPV types in genital condylomata acuminata and its risk factors.
Materials and Methods: The study included 126 male (mean age 30.9 , 18-67 years) with genital condylomata acuminata. Polymerase chain reaction (PCR) was performed to determine the types of HPV. Characteristics of patients and condylomata acuminata included age (≤30 vs >30 years), circumcision status, the number of warts (≤5 vs >5), the sites of lesions (including penopubic junction vs except penopubic junction), and macroscopic morphology (papillary vs sessile).
Results: HPV DNA was detected in 119 (94.4%) of 126 patients. High-risk HPV DNA was detected in 26 (21.8%) patients and low-risk HPV detected in 117 (98.3%). In low-risk HPV cases, HPV type 6 was the most common (N=76), and type 11 (N=12), other types (N=4) in order. In high-risk cases, type 16 was the most common (N=8). Twenty four cases of high-risk HPV showed co-infection with low-risk HPV. Only two cases showed single infection with high-risk type 16 or 51. There were 16 cases (36.4%) of high-risk HPV in 44 patients with condylomata acuminata on penopubic junction and three cases (60%) in five uncircumcised patients of those. Binary logistic regression analysis revealed that condylomata acuminata on penopubic junction (OR=6.02, 95% CI=2.04-17.81, p=0.001) and with uncircumcisied state (OR=14.58, 95% CI=1.81-117.25, p=0.012) have significant risk of high-risk type HPV infection.
Conclusions: The prevalence rate of high-risk HPV types in genital condylomata acuminata of Korean male is about 22%. The patients with high-risk HPV infection should be counseled for the prevention of HPV transmission and their sexual partners might be recommended for PCR for HPV infection. Especially the patients who are not circumcised and have condylomata acuminata on penopubic junction should be considered about probability of high-risk HPV infection.

MP-16.20
The Frequency of Surgical Site Infections in Radical Retropubic Prostatectomy Is Not Increasing Regardless of Short Duration of Antimicrobial Prophylaxis
Teruhisa U, Satoshi T, Kouji I, Toshiaki T, Hiroshi K, Naoya M, Taiji T
Dept. of Urology, Sapporo Medical University School of Medicine, Sapporo, Japan

Introduction and Objective: To date, several studies show that single-dose AMP is effective as well as 2 or 3-day duration

of AMP in radical retropubic prostatectomy. To reveal the proper duration of AMP for the patients with radical retropubic prostatectomy, we retrospectively analyzed the frequency of surgical site infections (SSI) in that operation.
Materials and Methods: We reviewed the incidence of SSI in 357 patients who underwent radical retropubic prostatectomy from 2001 to 2011 in our department. Surgical site infection was defined according to the guidelines of Centers for Disease Prevention and Control (CDC) in United States. Basically, the antimicrobial agents classified into penicillin or 1st or 2nd generation cephalosporin were used for AMP. The single dose was defined as the administration the antimicrobial agent just before the start of operation and if the surgery continued more than 3 hours, additional single dose was administered. The 2-day AMP was defined as single-dose with additional dose if necessary and administration in post operation day 2. The 3-day AMP was defined as single dose with additional dose if necessary and administration in post operation day 2 and 3. The 3-day AMP was done from 2001 to 2006, the 2-day AMP was done from 2007 to 2010, and single-dose AMP was done from 2010 to 2011. Body mass index (BMI), operating time, total volume of loss of blood were analyzed.
Results: In each AMP group, 230 patients were performed by 3-day AMP, 102 patients were done by 2-day AMP and 25 patients were done by single dose AMP. Superficial incisional SSI occurred in 14 patients (4.0%) in total patients. Superficial incisional SSI developed in 10 (4.3%) in 3-day group, 3 (2.9%) in 2-day group and 1 (4.0%) in single dose group, respectively. There was not statistically significant differences in the incidence of SSI among three groups.
Conclusions: In the prevention policy of SSI in radical retropubic prostatectomy, the short duration of AMP was no less effective than 3-day treatment in our study.

Moderated Poster Session 17
Prostate Cancer: Therapy
Wednesday, October 3
13:15–14:45

MP-17.01

The ProtecT Trial: Evaluating the Effectiveness of Treatments for Clinically Localised Prostate Cancer

Lane A[1], Donovan J[1], Neal D[2], Hamdy F[3]
[1]Dept. of Social and Community Medicine, University of Bristol, Bristol, UK; [2]Oncology Centre, Addenbroke's Hospital, University of Cambridge, Cambridge, UK; [3]School of Surgical Sciences, John Radcliffe Hospital, Uni of Oxford, Oxford, UK

Introduction and Objective: Prostate cancer is a significant public health problem with around 899,000 cases diagnosed worldwide. Intense debate surrounds the appropriate treatment, in part due to the absence of randomised trials comparing contemporary treatments. We have designed and conducted a trial of three major prostate cancer treatments.
Materials and Methods: The ProtecT randomised trial compares the effectiveness, cost-effectiveness and acceptability of treatments for localised prostate cancer preceded by community-based PSA testing in primary care. The trial compares active monitoring (regular disease assessments including PSA tests), radical prostatectomy and radical conformal radiotherapy. Unselected men aged 50-69 years were invited from 9 centres across the UK. The trial primary outcome is disease-specific survival at 10 years with secondary outcomes of overall survival, disease progression, treatment complications, urinary symptoms, sexual function, QoL and health service utilisation.
Results: Over 80,000 men participated (35% of invited) in the trial (2002-2009) and over 8,500 had a PSA of 3 ng/ml or above (10%, the biopsy threshold but PSA ≥20 ng/ml excluded). Nearly 7,500 men underwent biopsies (88% of eligible) and nearly 3,000 men were diagnosed with prostate cancer of which 2,500 had localised disease (35% of raised PSA). 1643 men were randomised (61% of eligible) giving over 500 participants in each treatment group. The clinical characteristics of randomised participants was generally favourable (Table 1). Follow-up is currently a median of 7 years with over 90% follow-up for the secondary outcomes and over 98% for the primary outcome.
Conclusions: This large trial comparing three prostate cancer treatments will have a major impact on future clinical practice worldwide. The demographic and clinical characteristics of randomised participants are very comparable to those of men diagnosed currently through prostate cancer screening.

MP-17.01, Table 1. Clinical and demographic characteristics of participants at randomisation

Characteristic	Category	Randomised (%) (n = 1643)
Age (years)	50-54	144 (8.8%)
	55-59	372 (22.6%)
	60-64	518 (31.5%)
	65+	609 (37.1%)
PSA (ng/ml)	3.0-5.99	1126 (68.5%)
	6.0-9.99	357 (21.7%)
	10.0-19.99	160 (9.7%)
Gleason score	6	1266 (77.1%)
	7-10	376 (22.9%)

MP-17.02

Development of Postoperative Nomogram to Predict PSA Non-Recurrence Rate after Radical Prostatectomy

Okubo H, Ohori M, Ishida T, Koh K, Sawada Y, Ohno Y, Nakashima J, Tachibana M
Dept. of Urology, Tokyo Medical University, Tokyo, Japan

Introduction and Objective: An accurate prediction for PSA recurrence after radical prostatectomy (RP) is mandatory to decide the strategy of secondary treatments. Therefore, we developed the nomogram based on postoperative factors and PSA levels in predicting of PSA non-recurrence rate after RP.
Materials and Methods: We studied the 618 patients who underwent RP for T1-3N0M0 prostate cancer at Tokyo Medical University hospital during 11 years from 2000 to 2010. Prognostic significance of all pathological factors in RP specimens and serum PSA were examined by a Cox hazard regression analysis and the nomogram was constructed after evaluated with Concordance index. The predicted and actual outcomes were compared with a calibration plot.
Results: With a mean follow-up of 44 months, a total of 169 (27%) patients had a PSA recurrence. In univariate analysis, pathological features such as EPE, positive surgical margin, SVI, Gleason score, lymphovascular invasion, microvascular invasion, perinueural invasion and serum PSA were significant predictor of PSA recurrence but lymph node metastasis was not significant (p=0.1). A Cox hazard regression multivariate analysis, EPE, Gleason score and positive surgical margin were significant predictor. Based on these outcomes, we constructed the nomogram using all pathological features and PSA level. The concordance index was 0.73 and the calibration plots appeared to be reasonable.
Conclusions: Our postoperative nomogram can provide valuable information for patients to counsel for adjuvant/salvage radiation or hormonal therapy after RP.

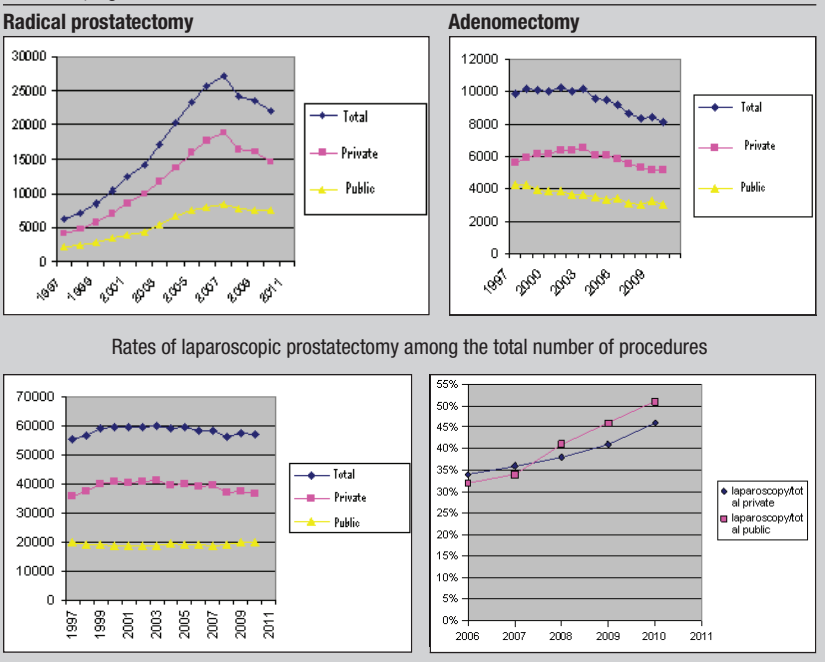
MP-17.03

French National Trends in Prostatic Surgery Volume

Alezra E[1], François T[1], Saint F[2], Kikassa J[1], **Raynal G**[1,2]
[1]Urology Dept., Hôpitaux Du Sud De L'Oise, Amiens, France; [2]Urology Dept., Amiens Teaching Hospital, Amiens, France

Introduction and Objective: The objective is to describe trends of prostatic surgery using French national coding database.
Materials and Methods: We answered the webserver of the French national coding database using the codes relevant for prostatic procedures (radical prostatectomy, TURP and adenomectomy) from 1997 to 2011. We differentiated procedures in private and in public sectors.
Results:
There were about two times more procedures in the private sector than in the public one. TURP procedures number was stable, about 55000 a year. There was a small decrease in adenomectomies. For prostatectomies, there was an increase of 332 % between 1997 and 2007, where there was a peak followed by a small decrease.
Conclusions: Trends were noticeable especially for prostatectomies which has shown a peak in 2007 for reasons to be explained.

MP-17.03, Figure 1.



MP-17.04

External Validation of a Preoperative Nomogram in Predicting PSA Recurrence after Radical Prostatectomy

Tanaka A[1], Ohori M[1], Iseki R[1], Nakagami Y[1], Hamada R[1], Ohno Y[1], Nakashima J[1], Ikeda R[2], Tachibana M[1]

[1]Dept. of Urology, Tokyo Medical University Hospital, Tokyo, Japan; [2]Dept. of Urology, Kosei Chuo General Hospital, Tokyo, Japan

Introduction and Objective: Among various nomograms, a nomogram to predict prognosis after the treatments is most important but the validation is mandatory to use at actual clinic. Therefore, we validated the 2 preoperative nomograms to predict PSA recurrence after radical prostatectomy using our cohort.

Materials and Methods: A total of 647 patients treated with radical prostatectomy for clinically localized prostate cancer at Tokyo Medical University hospital were included in the analysis. Men with neoadjuvant treatments were excluded from this study. The preoperative nomogram developed by Kattan et al. and Stephenson et al. was used to calculate the probability that a patient would be free from PSA recurrence at 5-year follow-up. The five variables included in the nomograms were preoperative PSA level, biopsy Gleason score, TNM clinical stage, number of positive and negative biopsy cores (Stephenson nomogram).

Results: Overall, PSA non-recurrence rate at 5-year was 72±4% with a mean follow-up of 44.7 months (1-144). The concordance index for Kattan nomogram was 0.68 that was similar to 0.67 for Stephenson nomogram. Therefore, the inclusion of the number of biopsy cores did not enhance the predictive accuracy of the model. Calibrations for both nomograms appeared to be good.

Conclusions: While the previous nomograms seem to be reasonable to use at an actual clinic, it would be ideal to develop a new nomogram that would fit with our cohort.

MP-17.05

Significance of Age and Comorbidity in Management Decision-Making in Early Stage Prostate Cancer

Oh J, **Davis J**, Hoffman K, Wen S, Kim J

MD Anderson Cancer Center, Houston, USA

Introduction and Objective: Active surveillance (AS) is a viable management option for select patients (pts) with early stage prostate cancer (PC). Comorbidity, long associated with all-cause mortality in PC, and age are important factors in PC management decision-making as surrogates of life expectancy.

Materials and Methods: A total of 226 pts with clinically localized PC enrolled in a prospective cohort study of AS between February 2006 and December 2008. Retrospective chart review identified 592 PC pts who received active treatment (AT) during this period. Pts, all at The University of Texas MD Anderson Cancer Center were matched by clinical stage (T1/T2), prostate-specific antigen (PSA) (<10 ng/mL), Gleason score (GS) (7 or less), and inclusion of AS in the management discussion. Comorbidity severity was scored using the medical record-based Adult Comorbidity Evaluation 27 index. Multivariate logistic regression was used to assess the effect of comorbidity and other covariates on the management decision.

Results: In the AS group, 52 (23.0%) had moderate or severe comorbidities, versus 128 (21.6%) in the AT group (p=0.74). In multivariate logistic regression (Table), older age was the only covariate associated with AS. Higher clinical stage, GS 7, white race, family history of PC in a first-degree relative, and higher baseline PSA were associated with higher likelihood of receiving AT.

Conclusions: The decision for AS versus AT was related to clinicopathologic risk factors and a family history of PC; severity of comorbidity was not a significant factor. Despite study limitations, findings underscore the need for real-time measure of comorbidity and the importance of better integration of comorbidity and age into management decision-making in these pts.

MP-17.05, Table 1. Multivariate Analysis

Factor	AS (N=226)	AT (N=592)	Odds Ratio	p
Gleason 7 (vs. 6)	33 (14.6%)	222 (37.7%)	4.90	<0.0001
Clinical stage, T2 (vs. T1)	17 (7.5%)	122 (20.8%)	3.09	<0.0001
Race, white (vs. non-white)	173 (76.5%)	483 (81.6%)	1.75	0.008
Family history of PC	46 (20.4%)	165 (28.1%)	1.64	0.015
Baseline PSA, ng/mL (range)	4.6 (0.4-9.6)	4.7 (0.2-9.97)	1.11	0.029
Age (range)	69.3 (48-89)	65.5 (43-87)	0.91	<0.001

MP-17.06

Retrograde versus Antegrade Nerve-Sparing During Robot-Assisted Radical Prostatectomy: Which Is Better for Early Functional Outcomes?

Ko Y[1,2], Coelho R[1,3,4], Orvieto M[1], Sivaraman A[1], Schatloff O[1], Chauhan S[1], Carrion R[1], Palmer K[1], Cheon J[1,2], Patel V[1]
[1]Global Robotics Institute, Florida Hospital Celebration Health, Celebration, USA; [2]Dept. of Urology, Korea University School of Medicine, Seoul, South Korea; [3]Hospital Israelita Albert Einstein, Sao Paulo, Brazil; [4]Instituto Do Câncer Do Estado De São Paulo, Sao Paulo, Brazil

Introduction and Objective: To evaluate the impact of the antegrade (from base to apex) and retrograde (from apex to base) nerve sparing (NS) approaches on functional outcomes after robot-assisted radical prostatectomy (RARP).
Materials and Methods: From January 2008 to January 2011, a total of 2267 RARPs were performed by a single surgeon who graded the extent of NS as a percentage of nerve bundle preserved (100%, 75%, 50%, 25%, and 0%) on each side. From a cohort of 1118 preoperatively potent men (SHIM>21), 793 patients had a sum of 200% of NS from each side (full NS), and 501 patients had at least one year of follow up. After propensity matching, 344 patients were finally selected, and these patients were categorized into two groups according to whether NS was conducted by antegrade (Group 1, n=171) or retrograde (Group 2, n=173). Validated questionnaires were used for assessment of continence and potency recovery at 1 month, then every 3 months, up to a year.
Results: Groups 1 and 2 were similar in all preoperative baseline characteristics, including age, body mass index, gland size, preoperative AUA and SHIM score, serum PSA level, clinical stage, biopsy Gleason score, D'Amico risk stratification, and presence of diabetes mellitus, hypertension, hyperlipidemia, and coronary artery disease. Intraoperative, while operative time, hospital stay, catheter indwelling period, complication and transfusion rate were similar, blood loss (119.6±34.2 vs. 111.6±31.6 ml, p=0.027) was increased in Group 1. Overall positive margin rates were similar (11.1% vs. 6.9%, p=0.192), and no correlation with NS approach was found in multivariate analysis regarding margin status. Potency rates at 1 month, 3 months, 6 months, 9 months, and 12 months were 39.7%, 73.3%, 81.4%, 89.5%, and 93.8%, respectively. At 3, 6, and 9 months, it was significantly higher in Group 2 (65.5% vs. 80.9% [p=0.001], and 72.5% vs. 90.2% [p<0.001], and 85.8% vs. 93% [p=0.048], respectively). Multivariable analysis using all preoperative variables also indicated that NS approach was an independent predictor for potency regain along with age, gland size, and concomitance of hyperlipidemia, at 3 and 6 months. After adjusting for other predictors, the hazard ratio for potency recovery for Group 2 relative was 2.264 (95% CI: 1.372 – 3.736, p=0.001) at 3 months, and 3.605 (1.951 – 6.661, p<0.001) at 6 months. The NS approach also affected the recovery of continence at 1 month using same model; the hazard ratio for continence recovery for Group 2 at this time point was 1.581 (1.001-2.496, p=0.049).
Conclusions: In patients with normal preoperative erectile function and who had full bilateral NS, a retrograde NS approach facilitated early recovery of potency and continence compared with an antegrade approach without compromising cancer control.

MP-17.07

Radical Prostatectomy for High-Risk Prostate Cancer Defined by Preoperative Criteria: Is the Current Definition Adequate?

Kliment Jr. J, Elias B, Luptak J, Svihra J, Tomaskin R, Javorka K, Sopilko I, Jonas M, Kliment J
Dept. of Urology, Jessenius School of Medicine, Martin, Slovakia

Introduction and Objective: To asses pathological findings and oncological outcomes after radical prostatectomy in men with high-risk prostate cancer (PCa).
Materials and Methods: We performed retrospective analysis of 151 patients who underwent radical retropubic prostatectomy for high-risk PCa between 1995 and 2009. High-risk PCa was defined according to D'Amico classification: stage ≥ T2c or Gleason score (GS) ≥ 8 or PSA ≥ 20ng/ml. Time to biochemical progression, specific and overall survival curves were constructed by the Kaplan-Meier method and long-rank tests were used for comparison of the survival curves.
Results: Mean age of patients was 62.1 (range 48 – 76), median 63 years. The mean follow up was 53 months (range 9 – 163), median 40. The mean preoperative PSA was 16.3 ng/ml (range 2,5 – 100), median 13,5 ng/ml. Clinical stage cT1c was present in 11 (7.3%) patients, cT2 in 21 (13.9%) and cT3 in 119 (78.8%) patients. Pathological stage pT2a was found in 3 (2.0%) patients, pT2b in 3 (2.0%), pT2c in 38 (25.2%), pT3a in 34 (22,5%) and pT3b in 71 (47%) patients. Biopsy GS ≤ 6 was found in 66 (43.7%) patients, GS 7 in 41 (27.2%), GS 8 in 31 (20.5%) and GS 9 in 13 (8.6%) patients. Final histopathology showed GS ≤6 in 27 (17.9%) patients, GS 7 in 80 (52.9%), GS 8 in 18 (11.9%) and GS 9 in 26 (17.2%) patients. Positive surgical margins were found in 64 (42.4%) patients. Eleven (7.3%) patients had positive lymph nodes. The 3, 5, 10–year biochemical progression-free survival rate was 85.92%, 65.78% and 27.27%, respectively. Cancer-specific survival was 97.59%, 94.09% and 67.89%, respectively. Overall survival was 94.9%, 91.5% and 66.02%, respectively. The strongest predictor of biochemical progression was pathological stage, positive surgical margin and GS. There were 36 patients (23,8%) with favourable pathology defined by stage ≤ pT2c, pN0, GS ≤ 7 and negative surgical margin in our series.
Conclusions: Radical prostatectomy for high-risk prostate cancer may provide acceptable long-term oncological control for selective subgroup of patients. Further prognostic stratification of high-risk prostate cancer is warranted to provide patients with tailored treatment option.

MP-17.08

Effectiveness of Three-Dimensional (3D) Imaging Systems in Laparoscopic Radical Prostatectomy: Randomized Comparative Study with 2D Systems

Kinoshita H[1], Nakagawa K[2], Usui Y[3], Iwamura M[4], Ito A[5], Miyajima A[2], Arai Y[5], Terachi T[3], Baba S[4], Matsuda T[1]
[1]Dept. of Urology and Andrology, Kansai Medical University, Osaka, Japan; [2]Dept. of Urology, Keio University School of Medicine, Tokyo, Japan; [3]Dept. of Urology, Tokai University Hospital, Isehara, Japan; [4]Dept. of Urology, Kitasato University School of Medicine, Sagamihara, Japan; [5]Dept. of Urology, Tohoku University Graduate School of Medicine, Sendai, Japan

Introduction and Objective: There is only limited data evaluating the effectiveness of 3D imaging systems compared to two-dimensional (2D) imaging systems. We conducted randomized controlled trials to evaluate whether 3D images are useful in performing laparoscopic radical prostatectomy compared to 2D imaging systems.
Materials and Methods: Nine experienced surgeons of four institutions

participated in this study. One hundred and twenty laparoscopic radical prostatectomies (LRP) were randomly allocated according to several variables to each surgeon from March 2011 to November 2011. Primary endpoints are the time of urethrovesical anastomosis and the 3D to 2D conversion rate. Secondary endpoints are the total operation time, number of sutures of urethrovesical anastomosis, scope position from the working site during urethrovesical anastomosis, urine leakage from anastomosis, and the fatigues of operators and scopists evaluated by the Fricker test and Subjective Symptoms Index (SSI), and questionnaires about the feasibility of various procedures. In this study, we used Olympus 3D laparo-thoraco videoscope systems provided to us by Olympus Medical Systems Corp (Tokyo, Japan).
Results: The baseline characteristics were similar in the two groups. Time of urethrovesical anastomosis and time of operation of each group were 29.9 min and 162 min in 2D, and 26.8 min and 158 min in 3D imaging system, and hence no significant difference was observed. However, the number of sutures of urethrovesical anastomosis was significantly less in 3D imaging system, 11.5 sutures versus 10.4 sutures (p=0.04). No conversion from 3D to 2D imaging system during LRP was observed. The fatigues of the operators and scopists evaluated by Fricker test and SSI were not significantly different between 2D and 3D imaging systems. The feasibility which was evaluated by eight questionnaires about typical procedures during LRP was significantly better in 3D imaging system.
Conclusions: Although 3D imaging systems do not shorten time of urethrovesical anastomosis and the operation time of LRP in the case of experienced surgeons, it increased the feasibility of various procedures without increasing fatigue. Especially in urethrovesical anastomosis, 3D imaging systems were useful for surgeons in performing precise suturing, when aiming to decrease the number of sutures.

MP-17.09
Nerve-Sparing Procedure Impacts on Early Recovery of Postoperative Urinary Continence in Patients Treated with Total Urinary Reconstruction Technique in Robot-Assisted Radical Prostatectomy
Shiroki R, Maruyama T, Kusaka M, Hoshinaga K
Fujita Health University, Toyoake, Japan

Introduction and Objective: The association between baseline status or surgical procedure and urinary continence recovery after robot-assisted radical prostatectomy (RARP) remains controversial. Our RARP procedure consisted of ultradissection of bladder neck without opening the endopelvic fascia and total urinary reconstruction, comprising posterior (Rocco stitch), anterior, and lateral rebuilding to reverse the pre-prostatectomy anatomical structure. In this study, we retrospectively analyzed the affecting factors for the postoperative urinary continence recovery after RARP.
Materials and Methods: This study included 106 consecutive patients with prostate cancer treated with bilateral nerve sparing radical prostatectomy between 2008 and 2011. All patients had preoperative functional and oncological data available, including age at surgery, body mass index, prostate specific antigen, and erectile and urinary function. Also, operative data consisted of nerve-sparing status, estimated blood loss (EBL), and operative duration. Median operative time and EBL was 191 minutes and 200 mL, respectively. Out of 106, nerve-sparing procedure was applied in 64 (60.4 %) for unilateral and 20 (18.9 %) for bilateral. Urinary continence was defined as wearing less than one pad, just for safety. Univariate and multivariate Cox regression models were used to test the association between predictors and urinary continence recovery after surgery.
Results: At a mean postoperative follow-up of 12.5 months (range 3 to 32) 102 patients (96.2%) had recovered urinary continence. Overall urinary continence recovery rate at 1, 3, 6 and 12 month post RARP was 50.0, 82.1, 93.4, and 97.2%, respectively. On univariate analysis patient age and the nerve-sparing status were significantly associated with urinary continence recovery, p=0.048 and p=0.020, respectively. On multivariate Cox regression analysis, the nerve-sparing procedure, including uni and bilateral, was demonstrated to be the only independent predictor of urinary continence recovery after RARP.
Conclusions: Nerve-sparing procedure on RARP should be considered for urinary continence predictions for accurate patient counseling before surgery. Nerve-sparing procedure might affect the pelvic vascular as well as synthetic nervous condition, which may affect the status of the external urinary sphincter, leading to early urinary continence recovery.

MP-17.10
Implantation of Artificial Urinary Sphincter AMS 800 in Patients with Severe Stress Urinary Incontinence After Prostate Surgery in Cases After Removal of Urethrovesical Anastomosis Strictures
Veliev E, **Golubtsova E**, Tomilov A
Russian Medical Academy of Postgraduate Education, Botkin`S Hospital, Moscow, Russia

Introduction and Objective: Artificial urinary sphincter AMS 800 is the most often used option in treatment of patients with severe stress urinary incontinence (SUI) after prostate surgery. In substantial part of the cases incontinent patients also have urethrovesical anastomosis (UVA) strictures.
Materials and Methods: We evaluated a consecutive series of 28 patients from 2008 to 2011, who had severe SUI after prostate surgery. The average age was 67,2 $\pm$ 12,8 years old. Among them 11 (39,3 %) men had UVA stricture. The main reasons for SUI were: radical retropubic prostatectomy (RPE) – 8 (72,7%) of patients; adenomectomy – 2 (18,2%); transurethral resection of prostate – 1 (9,1%). The methods of UVA stricture removal were: at first - transurethral resection of anastomosis zone.
Results: After TUR of UVA anastomosis, relapse of stricture was noticed in 3 (27,3%) patients. The relapse of UVA stricture was after the second and third TUR of UVA in the same 3 (27,3%) patients. Then they underwent open reconstruction (plastic) of UVA anastomosis. Three months later there was no stricture relapse. All of 28 patients underwent implantation of artificial urinary sphincter AMS 800. Complications: acute urinary retention – 3 (10,7%) patients, resolved by catheterization; urethral erosion – 1(3,6%) patient, resolved by removal of the cuff. After treatment all the patients were continent.
Conclusions: Implantation of artificial urinary sphincter AMS 800 may be effective treatment in patients with severe stress urinary incontinence after prostate surgery in cases after removal of UVA strictures. However, long-term follow-up is necessary.

MP-17.11
Comparative Morbidity Between Salvage High Intensity Focused Ultrasound and Cryotherapy for Radiorecurrent Prostate Cancer
Al-Zahrani A[1,2], Yutkin V[1], Autran A[1], Izawa J[1], Chin J[1]

[1]Div. of Urology, Dept. of Surgery, University of Western Ontario, London, Canada; [2]Dept. of Urology, Dammam University, Dammam, Saudi Arabia

Introduction and Objective: High intensity focused ultrasound (HIFU) utilizes focused ultrasound waves to destroy tissues. Whether as primary or salvage modality, HIFU is increasingly being promoted in the management of prostate cancer (PCa). Our primary objective is to assess the adverse events rate after salvage HIFU in patients with radiorecurrent PCa. We compared the results with salvage Cryotherapy (CRYO) adverse events which is another minimal invasive modality.
Materials and Methods: We retrospectively reviewed the adverse events of all patients who underwent salvage HIFU for recurrent PCa after Radiotherapy (2006-2010). The first equal cohort of patients who underwent salvage CRYO was selected for comparison (1995-1998).
Results: Salvage HIFU had lower incontinence (4.6% vs 53%) and urinary retention rate (6.2% vs 28%). Perineal pain rate was lower in the HIFU group (5% vs 24%). There was no bladder contracture in the HIFU group. The rate of postoperative hematuria was similar between both modalities. Recto-Urethral fistula rate and urethral sloughing were low in both modalities (3.1% and 1.5%, 1.5% and 3.1% respectively).
Conclusions: HIFU is a feasible salvage procedure in patients with radio-recurrent PCa. Salvage HIFU has lower adverse events in comparison to salvage CRYO in this group of patients.

MP-17.11, Table 1.

Variables	Salvage HIFU 2006-2010 (n=64)	Salvage Cryotherapy 1995-1998 (n=64)	P Value
Age	67	66	NS
Pre Salvage PSA	3.1	9.2	<0.05*
Incontinence (mild/moderate)	3 (4.6%)	34 (53%)	<0.05**
Incontinence requiring surgery	1 (1.5%)	2 (3.1%)	NS
Perineal pain	3 (5%)	14 (24%)	NS
Recto-urethral Fistula	2 (3.1%)	1 (1.5%)	NS
Urinary Retention	4 (6.2%)	18 (28%)	<0.05**
Gross Hematuria	7 (11%)	7 (11%)	NS
Urethral Sloughing	1 (1.5%)	2 (3.1%)	NS
Bladder Neck Contracture	0	6 (9.3%)	<0.05**
Urinary Tract Infection	6 (9.3%)	8 (12.5%)	NS

Postoperative morbidity between salvage High intensity focused ultrasonography (HIFU) and salvage Cryotherapy.
* Mann Whitney test. ** Fisher Exact test.

MP-17.12
MRI-Guided Prostate Cancer Focal Ablation Using HIFU by Means of Image to Image Registration

Dickinson L[1,2], Hu Y[3], Ahmed H[1,2], Allen C[4], Kirkham A[4], Emberton M[1,2], Barratt D[3]
[1]Dept. of Urology, University College Hospitals London NHS Foundation Trust, London, UK; [2]Div. of Surgery and Interventional Sciences, University College London, London, UK; [3]Centre For Medical Image Computing, University College London, London, UK; [4]Dept. of Radiology, University College Hospitals London NHS Foundation Trust, London, UK

Introduction and Objective: Multi-parametric (mp) MRI could be used to define the morphometry (location and limits) of a prostate tumour in order to allow greater precision in targeting focal therapies. This has hitherto not been possible so an anatomical zone has been declared the therapeutic target, with potentially large discrepancies between tumour and target volumes. We report on the use of tumour morphometry to inform the planning and conduct of therapy. The cases described are derived from a prospective Phase II multi-centre study of focal therapy using HIFU.
Materials and Methods: Non-rigid image registration software, developed in our institution, was used to transfer data on the location and limits of the index lesion as defined by mpMRI. Manual contouring of the prostate capsule and MR-visible lesion (histologically confirmed) was performed pre-operatively. A deformable patient-specific computer model capturing the location of the target lesion was registered to a 3D TRUS volume. Treatment volume could be added but not subtracted following registration, in order that cancer ablation was not compromised.
Results: MRI-TRUS registration was performed on 17 patients with MR visible lesions. The MRI-contoured lesion was visualised on the 3D TRUS images and compared with a prior manually-defined therapy plan. Two minor registration errors were attributed to temporary and correctable computer software issues. Time for registration took a mean 7 minutes (range 4 –16 minutes). Additional tissue was treated due to image-registration in 10/17 cases with a mean additional ablation time of 50 seconds (range 9 – 90 secs).
Conclusions: We have demonstrated that non-rigid MR-US registration is feasible, efficient and can locate lesions on ultrasound with potential for improved accuracy of focal treatments.

MP-17.13
High Intensity Focused Ultrasound Treatment for Recurrent Histologically Proven Localized Prostate Cancer: Initials Results

Al-Zahrani A[1,2], Yutkin V[1], Autran A[1], Izawa J[1], Chin J[1]
[1]Div. of Urology, Dept. of Surgery, University of Western Ontario, London, Canada; [2]Dept. of Urology, Dammam University, Dammam, Saudi Arabia

Introduction and Objective: Local relapse after External Beam Radiation (EBRT) or Brachytherapy (BT) for localized PCa has been reported in 30–40%. Current salvage therapy alternatives include radical prostatectomy, BT, cryotherapy and high-intensity focused ultrasound (HIFU). HIFU is a minimally invasive ablation technique using ultrasound waves to ablate the prostate.
Materials and Methods: From April 2006 to Sept 2011, 66 patients with histologically confirmed recurrent localized PCa after EBRT or BT were submitted to HIFU (Sonablate®500). Patients' clinical stages were ≤ T2, and all PSA levels were ≤10ng/ml. Pre-HIFU Gleason scores were ≤8 and there was no evidence of distant metastasis with both CT and bone scan. PSA levels, IPSS and IIEF-5 questionnaires were assessed at 45, 90, 180 days and 12 months. TRUS-guided biopsy was done at 180 days post-HIFU. Biochemical failure was defined according to the Phoenix criteria (nadir + 2ng/mL).
Results: Mean age was 68.01 (±5.27) year and the mean PSA was 4.7 (±2.96) ng/ml. Mean prostate volume was 25.59 (±10.5) cc. Pre HIFU IPSS and IIEF median scores were 7.44 (±4.68) and 9.2 (±8.15) respectively. The Gleason score was ≤6 in 16.7% cases, 7 in 48.5% and 8 in 15.2%. The Gleason score was dif-

ficult to determine in 19.7% of cases. Fifty-four patients (81.8%) had EBRT and 12 (18.2%) had BT. Twenty-two (33.3%) patients had androgen deprivation pre HIFU. Mean follow-up was 31.66 months ((± 18.71). At follow-up, 19 (28.8%) patients had evidence of persistent or recurrent PCa by TRUS-guided Biopsy. Progression Free Survival at 5 years was 43.9%. At 6 Month Post-HIFU, median IPSS and IIEF scores were 11.01 (±8) and 6.09 (±7.1). The median PSA value at 45, 90, 180 days and 12 months were 0.75, 0.74, 1.05 and 1.55 ng/mL respectively. Complications were uncommon and include persistent stress urinary incontinence 2 (3%), rectourethral fistula 2 (3%), and urinary retention 3 (5%).

Conclusions: Our initials results of salvage HIFU after radiotherapy in PCa showed a low rate of complications and acceptable oncologic results. Salvage HIFU is a promising treatment option, especially for suboptimal candidates for salvage prostatectomy. Further prospective multicenter controlled trials are needed to confirm the results.

Source of Fund: None

MP-17.14

Medium-Term Outcomes Following Primary Focal Therapy Using HIFU for Localized Prostate Cancer

Dickinson L[1,2], Ahmed H[1,2], McCartan N[2], Freeman A[3], Kirkham A[4], Allen C[4], Hindley R[5], Emberton M[1,2]

[1]Dept of Urology, University College Hospitals London NHS Foundation Trust, London, UK; [2]Div. of Surgery and Interventional Sciences, University College London, London, UK; [3]Dept. of Pathology, University College Hospitals London NHS Foundation Trust, London, UK; [4]Dept. of Radiology, University College Hospitals London NHS Foundation Trust, London, UK; [5]Hampshire Hospitals NHS Foundation Trust, Basingstoke, UK

Introduction and Objective: A limited number of prospective studies have evaluated the role of focal therapy for localised prostate cancer, demonstrating encouraging short-term cancer control with low rates of genito-urinary side-effects. We evaluated the medium-term (>2 year) outcomes from trial patients followed-up within a prospective registry.

Materials and Methods: Of 118 men with localised prostate cancer (T1c-T3a, Gleason grade ≤4+3, PSA <20) treated (Sonablate® 500 HIFU) in 3 Phase I/II prospective ethics-committee approved trials (hemi, focal, or index lesion ablation), 88 have completed at least 24 months follow-up. Cancer control was assessed using histological outcomes (post-HIFU biopsies of treated or suspicious areas) and biochemical disease-free survival (BDFS) using Stuttgart (PSA nadir + 1.2ng/ml) and Phoenix (PSA nadir + 2ng/ml) criteria. Composite disease-free status was defined as histological absence of disease, or BDFS in the absence of post-operative biopsies. Functional outcomes were assessed using validated patient questionnaires (IPSS, IIEF-15, UCLA EPIC-Urinary).

Results: Median follow-up was 32 months (range 24–69). Mean number of focal treatments was 1.2. There was one non-prostate cancer related death. Absence of any cancer was 72% (52/72), and absence of clinically significant cancer (≤3mm Gleason 3+3) was 86% (62/72) on post-operative biopsy. BDFS was 66% (57/87) and 82% (71/87) using Stuttgart and Phoenix criteria, respectively. Composite disease free status was 80% and 86%, using Stuttgart and Phoenix criteria, respectively. Four men (5%) required salvage radiotherapy or adjuvant hormones. Grade III rectal toxicity occurred in 1 man, with resolution on conservative management. Preservation of continence was 99% (86/87) pad-free, and 85% (56/66) leak-free pad-free. The rate of preserved erectile function was 89% (76/85), including 40% new PDE-5 inhibitor use (32/81).

Conclusions: Our results indicate that the short-term functional benefits of focal therapy seem to extend into medium-term follow-up, alongside encouraging cancer control. Longer-term outcomes are still required.

MP-17.15

Focal Therapy for Prostate Cancer Using I125 Seed Implantation: Hemiablative Brachytherapy for Patients Selected by Extended Biopsy and MRI Findings

Saito K[1], Kihara K[1], Numao N[1], Kijima T[1], Tatokoro M[1], Matsuoka Y[1], Koga F[1], Masuda H[1], Hayashi K[2], Shibuya H[2]

[1]Dept. of Urology, Tokyo Medical and Dental University, Tokyo, Japan; [2]Dept. of Radiology, Tokyo Medical and Dental University, Tokyo, Japan

Introduction and Objective: Focal therapy for localized prostate cancer could be a minimally invasive option to preserve genitourinary function. Since the optimal selection of patients is mandatory for this treatment, we have reported that our extended three-dimensional (3D) biopsy could indentify unilateral prostate cancer (Numao N, et al, Eur Urol supple, 2009). Among the ablative technologies for focal therapy, brachytherapy has potential for focal ablation due to its ability of dose and location adjustment by seed implantation under real-time monitoring. Based on the findings, we have started hemiablative brachytherapy using I-125 seed implantation for unilateral prostate cancer patients selected by extended biopsy as a focal therapy for prostate cancer. We aimed to describe the initial results of hemiablative brachytherapy.

Materials and Methods: The eligible criteria for hemiablative brachytherapy are as follows. Clinical stage is T2a or less. The positive cores of cancer are proven within unilateral lobe by extended 3D prostate biopsy. There was no cancerous lesion in contralateral lobe by multimetric MRI. Gleason score in positive cores was 7 or less. Maximum cancer length was 5 mm or less. PSA value is less than 20 ng/ml. On the treatment, I-125 seeds were implanted to deliver a dose of 160 Gy to the target lobe. The protocol has been approved by institutional ethical commit.

Results: At present, 6 patients were enrolled in this study and underwent hemiablative brachytherapy with written informed consents. Clinical stages were T1c in 4 patients and T2a in 2 patients. Median pretreatment PSA value was 6.0 ng/ml (range: 4.8–12.0 ng/ml). In all patients, Gleason 6 cancers were found in unilateral lobe with extended 3D biopsy. The median numbers of implanted seeds were 41 (range 39-44), 39, and 35 for each case, respectively. PSA levels decreased immediately after the ablation. During the follow-up period, a median of 8 months (range: 3 – 13 months), disease recurrence did not occur.

Conclusions: We demonstrated the initial results of focal therapy for prostate cancer with hemiablative brachytherapy. Hemiablative brachytherapy could show the initial good PSA response.

MP-17.16

Clinical Significance of Neoadjuvant Combined Androgen Blockade Before I-125 Prostate Brachytherapy in Patients with Localized Prostate Cancer

Fukumori T, Nakatsuji H, Senzaki T, Fukawa T, Takemura M, Yamamoto Y, Yamaguchi K, Izaki H, Takahashi M, Kanayama H

Dept. of Urology, IHB, The University of Tokushima Graduate School, Tokushima, Japan

Introduction and Objective: To evaluate the synergistic effect of neoadjuvant combined androgen blockade (CAB) before prostate brachtytharapy, we retrospectively evaluated clinical outcomes in patients with localized prostate cancer who received ^{125}I brachytherapy with or without neoadjuvant CAB.
Materials and Methods: From July 2003 to March 2009, consecutive patients with 119 low-risk, 114 intermediate-risk and 42 high-risk prostate cancers, which was defined by the D'Amico risk classification, were treated using ^{125}I permanent prostate brachytherapy with or without neoadjuvant CAB for six months. The patients treated with combined external beam radiation were excluded from this study. Mean duration of follow-up after brachytherapy was 53.3 months (range, 24-80 months).
Results: A total of 121 patients were treated with brachytherapy monotherapy, and 154 patients were treated with neoadjuvant CAB for at least 6 months before brachytherapy. Biochemical relapse free rates in patients with low-, intermediate-, and high-risk prostate cancer were 99.0 %, 91.7 %, and 83.3 %, respectively. There was no significant difference in biochemical relapse free rates between hormone naive and neoadjuvant CAB for 6 months before seed implantation (93.5 % vs. 93.1 %, p=0.793). Neoadjuvant CAB had no significant impact on biochemical relapse free rates in patients with low-, intermediate-, and high-risk prostate cancer. Only in patients with intermediate-risk prostate cancer which the dose delivered to 90% of the prostate gland (D90) was less than 160 Gy, there was a significant difference in biochemical relapse free rates between brachytherapy monotherapy and brachytherapy with neoadjuvant CAB (p=0.039).
Conclusions: Neoadjuvant CAB for 6 months had no significant impact on biochemical relapse-free rates in patients with localized prostate cancer. Only in patients with intermediate-risk prostate cancer, in which D90 was less than 160 Gy, neoadjuvant CAB had favorable impact on biochemical relapse free rates.

MP-17.17
Preliminary Clinical Experience of Photodynamic Diagnosis Using 5-Aminolevulinic Acid During Radical Prostatectomy for the Detection of Positive Surgical Margins
Fukuhara H[1], Inoue K[1], Kurabayashi A[2], Furihata M[2], Shuin T[1]
[1]Dept. of Urology, Kochi Medical School, Nankoku, Japan; [2]Dept. of Pathology, Kochi Medical School, Nankoku, Japan

Introduction and Objective: The surgical margin status after radical prostatectomy is a significant risk factor for biochemical recurrence and has a negative effect to life prognosis. So we need to excise the whole prostate completely by surgery. We could detect positive surgical margins and excise whole prostate completely by the use of photodynamic diagnosis (PDD) with 5-aminolevulinic acid (ALA) during surgery. Therefore we evaluated the feasibility of new PDD method by 5-ALA in Japanese prostate cancer patients.
Materials and Methods: In all patients with histological-proven prostate cancer who had the positive core in apex by prostate biopsy and highly suspicions of positive margins estimated by Japan PC table. We performed radical prostatectomy to those from February 2009 (open prostatectomy: 18 cases, laparoscopic prostatectomy:9 cases). Three hours prior to surveillance, 1.0g ALA dissolve in 50 ml of 5% glucose solution was given orally though stomach tube under anesthesia. After removal of the prostate, PDD of surgical margins was performed using the laparoscopy (HOPKINSII Straight Forward Telescope30°) and PDD system (KARL STORZ Endoscopy Japan K.K., Tokyo). The laparoscope was positioned in front of the resection margins to illuminate the tissue inside patients (urethral side, bladder side and rectal side). Red fluorescent-position areas were recorded and biopsied. After removal of the prostate, the prostate was sectioned. The tissue sections were also examined by PDD and biopsied. Fluorescent-positive areas were compared with pathological result.
Results: In all 27 patients, one patient demonstrated fluorescence-positive lesion about extraprostatic extention of the harvested prostate in posterior-lateral side and histological examination confirmed adenocarcinoma of Gleason score 3+3. In the sections of the harvested prostate, we obtained 131 biopsied samples in all. The fluorescence positives are 26 samples; the pathological positives were 19 samples. The sensitivity and specificity are 53.9 % and 89.3 % in the sections of harvested prostate. One patient had transient nausea as adverse events and all procedures were well tolerated by all patients.
Conclusions: Intraoperative photodynamic diagnosis is feasible for the detection of positive surgical margins in prostate cancer.

MP-17.18
The Significance of Early Confirmatory Extended Biopsy for Prostate Cancer Patients for Active Surveillance
Shimbo M[1,2], Hirabayashi K[3], Igarashi S[3], Kawashima K[1]
[1]Dept. of Urology, Tochigi Cancer Center, Utsunomiya, Japan; [2]Dept. of Urology, St. Luke's International Hospital, Tokyo, Japan; [3]Dept. of Pathology, Tochigi Cancer Center, Utsunomiya, Japan

Introduction and Objective: In low-risk prostate cancer (PCa) patients, Gleason sum (GS) upgrade is observed in 30-50% cases compared with radical prostatectomy specimens. This difference could lead to a failure in the treatment of the low risk PCa cases, especially when selecting active surveillance or minimally invasive therapy, such as brachytherapy. To avoid initial misdiagnosis, we performed an early confirmatory biopsy (CB). We assessed the significance of the CB and the rate of upgrade as compared to the initial biopsy.
Materials and Methods: From January 2005 to August 2011, 143 CBs were performed 90 days after the initial diagnosis at Tochigi Cancer Center. Of these cases, the candidates for active surveillance (clinical stage T1c-T2a, less than 3 biopsy cores, 50% or less of any core involved, GS of 6 or lower, 20ng/mL or less of PSA level) were included this study. The biopsy was performed transrectally, and taken with12-18 cores.
Results: We identified 79 cases within these criteria. In the CB, the results were as follows: no cancer cases (included atypical glands); 21 cases (26.6%), GS 5; 4 cases (5.1%), GS6; 24 cases (30.4%), GS7; 23 cases (29.1%), GS8; 3 cases (3.8%) and GS9; 4 cases (5.1%). In the cases with GS6 or less, 3 cases were observed with 3 or more positive core. GS upgrade were seen in the 37.8% and 41.8% cases were excluded from active surveillance criteria. In 23 cases of this cohort, radical prostatectomy was performed. There was no insignificant case in the radical prostatectomy specimen (22 cases; GS of 7 or higher, 1 case; GS5 and tumor volume was over 1cm^3).
Conclusions: By performing the CB early, we showed that a GS upgrade was seen with a relatively high rate and could identify potentially aggressive cases. Although active surveillance and minimally invasive therapies are selected in the low risk patients, we should recognize the potential for a diagnostic error by the initial biopsy. We have to recognize the limitation of initial prostate biopsy results and early confirmatory extended biopsy is helpful to achieve a proper PCa diagnosis, especially in the low-risk patients.

Moderated Poster Session 18
Renal Transplantation
Wednesday, October 3
13:15–14:45

MP-18.01
Ureteral Complications of Renal Transplantation
Al Oriafi I, **Aggamy M**
King Fahad Specialist Hospital, Dammam, Saudi Arabia

Introduction and Objective: Ureteral complications occur in 3-14% of renal transplantations. Our objective was to review the ureteral complications of our living related renal transplantation cases and to relate that to open and laparoscopic donor nephrectomy.
Materials and Methods: We reviewed our cases of renal transplantation which were done between September 2008 and December 2011, retrospectively, who had a living donor nephrectomy, whether open or laparoscopic. All ureters were implanted using the extra vesical lichgregoir technique and a double–J stent was inserted for 2-3 weeks.
Results: There were 242 renal transplantations performed in our center. Of the living related transplants 143 (126 adult and 17 pediatric recipients), 111 (77.6%) were done laparoscopically while the rest 32 (22.4%) were done by open surgery (because we didn't start laparoscopy at the beginning of our transplant program). Four (2.8%) of the living related recepients had ureteral complications. Three of them have received kidneys retrieved by open nephrectomy and one of them was in the laparoscopy group. Two of the open group patients had stenotic distal ureters which were managed successfully endourologically and the third case (0.7%) had severe distal ureteric stenosis and it was managed by open uretero-cystostomy. While the case who received kidney donated laparoscopically had a stenotic distal ureters which were managed successfully endourologically.
Conclusions: the incidence of ureteral complications in our series is within the reported international rate. Laparoscopic donor nephrectomy in our hands has fewer ureteric complications (probably due to extra care during ureteric dissection) than open donor nephrectomy.

MP-18.02
Non-Invasive Removal of Ureteric Stents After Renal Transplantation versus Conventional Technique
Taghizadeh Afshari A, Farshid S, Fallah M, Alizadeh M
Urmia Medical University, Urmia, Iran

Introduction and Objective: To compare simple and noninvasive technique for stent extraction after renal transplantation with conventional technique.
Materials and Methods: We included 80 patients that underwent kidney transplantation; ureterocystostomy technique was Bari with double j insertion. This technique in group one (N=40) was conventional and in group 2 (N=40) it was a novel technique where we sutured double-j end to foley tip with vicryl which helps us to extract double-j by foley removal after one week. Group one's data was collected retrospectively.
Results: Mean age for group 1 was 41 and for group 2 it was 40. Male to female ratio was 2:1 for both groups. UTI prevalence during 6 months after surgery in group one was 78.9 % and 52.6% for group 2, probably due to the long existence of double-j in group one (4 weeks vs. 1 week), and double-j extraction with procedures that increase UTI such as cystoscope in group one. There was no difference in perinephric collection rates such as urinoma and lymphocele (2 patients in each group). Ureteral obstruction was reported in 4 patients of group one but none of the patients in group 2 had such complication. Two patients in group 2 had complicated foley removal that managed successfully.
Conclusions: Use of this novel technique can help us to remove stents earlier and without invasive procedures, which leads to lower complication rates, such as UTI and incrusted dj.

MP-18.03
Outcome of Kidney Transplantation from Donation after Cardiac Death under Low Dose Calcineurin Inhibitor
Fukami N, Sasaki H, Maruyama T, Kusaka M, Ishikawa K, Hayakawa K, Shiroki R, Hoshinaga K
Dept. of Urology, Fujita Health University School of Medicine, Toyoake, Japan

Introduction and Objective: New immunosuppressive agents have dramatically reduced the incidence of acute rejection and improved short-term graft survival in kidney transplantation (KTx). These agents, however have not improved the long-term graft survival significantly. The aim of this study is to report the outcome of KTx from donation after cardiac death (DCD) under immunotherapy started with low dose calcineurin inhibitor (CNI).
Materials and Methods: Since November 1990, 127 KTx from DCD were performed at our center. The mean age of recipients and donors were 44.1 years and 47.2 years, respectively. The recipients' pre-transplant dialysis period ranged from 12 to 391 months (mean; 117 months). Seventy-eight patients were treated with cyclosporine (CsA), methylprednisolone (MP), anti-human lymphocyte globulin and azathioprine or mizoribine, 12 were treated with CsA, MP and mycophenolate mofetil (MMF) and 37 were treated with tacrolimus (TAC), basiliximab, MMF and MP. CNI was started immediately after transplantation with initial oral dose of 4 mg/kg/day in CsA or 0.15 mg/kg/day in TAC. These doses ware adjusted according to the blood concentration. The trough level was maintained below 100 ng/ml of CsA and 10 ng/ml of TAC during post-transplant ATN.
Results: Following transplants, immediate graft function was noted in 25 recipients (19.6%), and 98 patients (77.1%) had delayed graft function necessitating post-transplant dialyses for one to 39 days (mean; 9.3 days). Four grafts (3.1%) never recovered the renal function. The 1, 3, 5, 10 and 15 year patients and grafts survival rates post-transplant ware 98.3 vs. 98.3 %, 95.7 vs. 94.7 %, 92.7 vs. 87.9 %, 84.9 vs. 66.1 % and 80.4 vs. 53.3 %, respectively.
Conclusions: Employing immunotherapy starting with low dose CNI provided excellent long-term graft survival in DCD KTx.

MP-18.04
Bone Metabolism Markers in Renal Graft Recipients
Maeyama R[1], Ishii D[1], Wakai H[1], Sugita A[1], Takeuchi Y[2], Noguchi F[1], Yoshida K[1]
[1]Dept. of Urology, Kitasato University, Sagamihara, Japan; [2]Dept. of Internal Medicine, Kitasato University, Sagamihara, Japan

Introduction and Objective: We evaluated the effectiveness of bone metabolism markers and bone mineral density according to the renal graft function along the renal transplantation.
Materials and Methods: Out of 454 renal recipients between 1975 and 2011 at Kitasato University Hospital, we analyzed eighty-seven cases of renal transplantation patients who had data of bone mineral density and bone metabolism markers. We evaluated bone mineral density and bone metabolism markers as followed: osteocalcin (OC), tartrate-resistant acid phopshatase (TRACP 5b), serum crosslinked N-telopeptide of type

collagen (NTx), bone alkali phosphatase (BAP), intact parathyroid hormone (iPTH), serum Calcium, and serum Phosphorus. These parameters were evaluated in 15 end stage renal disease patients before renal transplantation and 74 renal graft recipients of more than one year after transplantation.
Results: Five ESRD patients out of 13 of before transplantation were male and the average age of these were 38 years-old. Fifty transplanted recipients out of 74 were male and mean age were 47.6 year-old. The average period after renal grafting of those recipients were 108.3 months. Estimated GFR improved from 5.4 ml/min/1.73m2 to 35.5 post-renal transplantation. According to this improvement of renal function, iPTH, OC and serum NTx were improved significantly. BAP and TRACP-5b were not recognized significant change.
Conclusions: We consider that BAP and TRACP-5b, which were little affected by renal function, could be useful bone mineral markers after renal transplantation.

MP-18.05
Outcome of Spousal Kidney Transplantation: A Single Center Experience
Iwai T[1], Uchida J[2], Machida Y[2], Kuwabara N[2], Naganuma T[2], Kumada N[3], Nakatani T[2]
[1]Dept. of Urology, Yao Municipal Hospital, Osaka, Japan; [2]Dept. of Urology, Osaka City University Graduate School of Medicine, Osaka, Japan; [3]Dept. of Urology, Suita Municipal Hospital, Suita, Japan

Introduction and Objective: Due to the severe shortage of deceased donors in Japan, living donor kidney transplantation is mainly performed in Japan. According to the Japanese renal transplant registry of 2010, there were 1,276 living kidney transplantations including 37.1% from spouses. We summarized our experience with living unrelated kidney transplantation between spouses.
Materials and Methods: A total of 127 patients with end-stage renal disease underwent living donor kidney transplantation at Osaka City University Hospital between January 2001 and February 2012, of which 51 cases were kidney transplantation between spouses. ABO-incompatible kidney transplantation was performed in 18 of the 51 cases. We analyzed these recipients, focusing on the immunosuppressive protocols, complications, and patient/graft survivals.
Results: Patient and graft survival rates were 100%. One patient experienced antibody-mediated rejection and intractable acute cellular rejection, one had antibody-mediated rejection, and one had an intractable acute cellular rejection episode that was treated using OKT-3. The incidence of acute rejection was 19.6%. There were no severe complications among the recipients.
Conclusions: Previously, living unrelated kidney transplantation between spouses has met with some opposition due to poor tissue antigen compatibility and fear of commercialization. Recent significant improvements in immunosuppression and recipient care indicate that it has become a viable treatment option in Japan, which lacks deceased donors.

MP-18.06
Deceased Organ Procurement and Its Impact on Organ Transplantation in Iran During the First Ten Years of Activity
Kazemeyni S, Aghighi M
Dept. of Urology, Tehran University of Medical Sciences, Tehran, Iran

Introduction and Objective: The act of transplantation from deceased donors with the name "organ transplantation of dead patients or patients for whom brain death is certain" was passed in parliament in 2000. And in subsequent years, a network designed for organ procurement and its components was established in Tehran and the other cities gradually. One decade has passed since this Law and design of organ transplantation from brain death patients in Iran. We evaluated the success and failure of this performance and its overall impact on organ transplantation in the study.
Materials and Methods: Data were collected from publications and reports of Ministry of Health and some published articles from these organs procurements in period of 1380-1389 *Hegri Shamsi* equivalent to 2001-2010
Results: Up to 2010 a total of 3673 organs were harvested from deceased donors and transplanted. The rate of liver transplantation has increased rapidly in this decade and reached 280 cases in 2010 whenever this was 16 cases in 2001 (about 18 times). The cadaveric kidney transplantation rate was 554 cases in 2010 and composed 19% of total kidney transplantation. This is 8 times more than the first year of this period.
Conclusions: The rate of deceased organ procurement increased in the first decade of this activity after passing the law and establishment of this program. But due to more potentiality of deceased organ procurement in Iran, there is need to increase this procedure. For this aim we suggest a complete Iranian Network for Transplant Organ procurement.

MP-18.07
Impact of ABO Compatibility in Elderly Kidney Transplant Recipients
Kimura T, Yagisawa T, Ishikawa N, Sakuma Y, Fujiwara T, Nukui A, Yashi M
Jichi Medical University, Shimotsuke, Japan

Introduction and Objective: Recently, ABO incompatible kidney transplantation (ABO-IN Tx) has been performed in patients with various backgrounds such as the elderly and unrelated combination. We compared the outcomes of ABO-IN Tx in patients aged ≥60 years with in younger patients.
Materials and Methods: Twenty-four consecutive ABO-IN Tx recipients were included. Patients were divided in two groups according to the recipient age: G1 (≥60 yrs, n=9), and G2 (<60 yrs, n=15). Mean recipient/donor age were 63.9±2.8/63.4±5.0 yrs in G1 and 46.5±10.5/54.1±10.4 yrs in G2. Mean duration of dialysis was 58.9±46.5 months in G1 and 25.9±22.9 months in G2, respectively. We compared the difference in the patient and graft survival, and complications, such as acute rejection, cytomegalovirus infection, and surgical complications between the groups. All patients received desensitization treatment with plasmapheresis until pre-transplant ABO IgG titers became <16. Two patients of G1 and 3 patients of G2 received rituximab before transplantation and others underwent splenectomy at the time of transplantation.
Results: The patient/graft survival (death censored) was 100%/100% at 1, 3 year(s) in G1, 100%/100% at 1 year and 93%/100% at 3 years in G2. Acute rejection occurred in 2 (22%) of G1 and 2 (13%) of G2. The incidence of cytomegalovirus antigenemia was 67% in G1 and 80% in G2. Surgical complications occurred 3 (33%) of G1 and 4 (27%) of G2. The serum creatinine at 1 year after transplantation was 1.1 mg/dl in both groups.
Conclusions: The patient and graft survival, complications, and serum creatinine at 1 year after transplantation were same in both groups. ABO incompatibility had no negative impact on the outcome of kidney transplantation in the elderly.

MP-18.08
Transplantation of Cadaveric Pediatric Kidneys into Adult Recipients
Mahdavi R, Shakiba B, Tavakoli M,

Heidari K
Dept. of Urology, Imam Reza Hospital, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objective: Renal transplantation is the best treatment for end-stage renal disease (ESRD). This causes a wide gap between the supply and demand for kidney donors. For expanding the donor pool, some studies investigated the efficacy of transplantation of pediatric cadaveric renal in to ESRD patients. The aim of present study was to evaluate the graft outcome of kidneys from cadaveric pediatric donors in adult recipients.
Materials and Methods: Twenty-four adults (13 women, 11 men) receiving kidney transplants from a pediatric donor (<14 years of age) were included in the study. They underwent primary transplantation and we exclude three en-bloc kidney transplantations. The mean period of follow-up in this study was 48 months (range 1-72 months). The data evaluated by Kaplan-Meier method using the Statistical Package of Social Science (SPSS) version 17.
Results: Mean donor age was 9.8 years (range 4-13 years) and mean recipient age was 27.9 years (range 18-49 years). Of the 24 recipients, three patients (12.5%) died and one loss the graft and return to dialysis. Graft survival rates at 1 and 5 years were 90% and 90%. Patient's survival rates at 1 and 5 years were 95% and 79% respectively.
Conclusions: Present study shows that cadaveric pediatric donor kidneys can be used in adult recipients with excellent results.

MP-18.09
Endourological Procedures for the Management of Urinary Calculi in Transplanted Kidneys
Mahdavi R, Tavakoli M, Taghavi R, Eftekhar Shahroudi I, Aghasizadeh F, Ghoreifi A
Dept. of Urology, Imam Reza Hospital, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objective: The purpose of this paper is to assess the safety and efficacy of endourological procedures for treatment of urololithiasis in transplanted kidney.
Materials and Methods: Patient characteristic, predisposing factors, clinical presentation, endourological procedures, complications, stone-free rate and graft and patient survival were analyzed.
Results: Between Jan 1989 and Sep 2011 we followed our total number of 1800 renal transplantation and found 21 cases of urolithiasis in them. Twenty-one patients (average 22 years old, 7 women and 14 men) with urolithiasis in transplanted renal units were treated. Predisposing factors included hyperparathyroidism (n=6). Hyperuricemia (n=5) ureteral stricture or obstruction (n=2), recurrent UTI (n =4) and unknown factors (n= 4). Clinical presentation consisted of hematuria (n=6) creatinine raise (n=5) UTI (n=4), anuria (n=3), and hydrophrosis (n=3). Localization of stones were in pelvis (n=8), calyces (n=3), and ureter (n=10). Size of stones was between 12-22 mm in kidneys and 6-10 mm in ureters. According to the size and location of stones we used different treatments. ESWL (n=9), TULP (n=10), PCNL (n=6) and combination therapy (n=4). Stone-free status was achieved in 6 of 9 in ESWL group (75%), in 7 of 10 in TULP group (70%), in 6 of 6 in PCNL group (100%). In patients who were not stone-free we used combination therapy and at last all of our patients were stone-free (100%). No intraoperative complications occurred, including major bleeding. Mean initial and post operative creatinine levels were (3 and 1.5) mg/100.
Conclusions: Endourological procedures for urolithiasis in transplanted kidneys are safe and effective methods with a high overall stone-free rate and should be considered in experienced hands and centers.

MP-18.10
Successful Transplantation of a Split Crossed Fused Lump Type Ectopic Kidney into Two Patients with ESRD
Mahdavi R, Mogharabian N, Ghoreifi A, Shakiba B
Dept. of Urology, Imam Reza Hospital, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objective: Historically, kidneys with congenital abnormalities were often discarded because of the perceived risk of technical complications. However, as the waiting times for kidney transplants continue to increase, transplant centers have become more aggressive at using select kidneys with congenital abnormalities. Horseshoe kidneys are now routinely used for transplantation, either as a single or split graft. Renal ectopia describes the failure of the kidney to ascend and cross the midline during development, resulting in the ipsilateral position of both kidneys. In many cases they remain fused. Although these kidneys have an increased rate of vascular and ureteral anatomical anomalies, there are select reports of use in renal transplantation.
Materials and Methods: The donor was a 27-year-old male with head trauma during a motorcycle accident. He did not have significant past medical or surgical history. The patient was hemodynamically stable with good urine output and the serum creatinine was 1.3 at the time of donation. After laparatomy through midline incision we saw that both kidney was fused in the form of lump crossed ectopia located in the left side. We decided to divide two fused kidney and after splitting them, each of them was transplanted to one recipient. We performed four vascular anastomosis for each recipient (two arteries and two veins). Both recipients were of low socioeconomic status and had been transplanted previously with 6 and 7 years free of dialysis, respectively.
Results: There was immediate dieresis in both recipients after declamping of anastomoses. During 9 months' follow-up, serum Cr of both patients was lower than 1.5. One patient had lymphocele refractive to conservative management, treated surgically with peritoneal window opening lymphocele into peritoneum. The other patient had pelvicutaneous fistula treated with open.
Conclusions: Crossed fused renal ectopia should not be considered a contraindication to transplantation. The kidneys must be both procured and transplanted with careful attention to the anomalous vascular and ureteral anatomy. Transplant surgeons should be familiar with potential anatomic variations to ensure these grafts are not wasted.

MP-18.11
The Importance of Slow and Delayed Graft Function vs. Immediate Graft Function on Cadaver Renal Transplant Outcomes
Manu M[1], Harza M[1], Serbanescu B[1], Stefan B[1], Baston C[1], Tacu D[1], Kerezsy E[1], Domnisor L[2], Manu R[1], Sinescu I[1]
[1]Center of Uronephrology and Renal Transplantation, Fundeni Clinical Institute, Bucharest, Romania; [2]ICU and Dept. of Anesthesiology, Fundeni Clinical Institute, Bucharest, Romania

Introduction and Objective: According to the initial graft function, kidney transplant patients could be divided into three groups: immediate graft function (IGF – postoperative day 5 serum creatinine < 3 mg/day), slow graft function (SGF – day 5 creatinine >3mg/dl, no dialysis)

and delayed graft function (DGF – day 5 creatinine >3mg/dl and dialysis). Delayed graft function is a common complication in cadaver kidney transplants sometimes with an arbitrary definition. There is disagreement about the impact of slow and delayed graft function on renal transplant outcomes. Our study was designed to assess the impact of the above three categories in transplant outcomes, and factors involved in first days graft function such was donor age and additional vascular reconstruction.
Materials and Methods: From June 1997 until July 2011, 1232 renal transplantations (960 living and 272 cadaver, 1169 adults and 63 pediatric transplants) with an average of 85/year (116 in 2007), were performed in our center. A total of 105 cadaver transplants entered in our study and renal grafts developed function as follows: 72 transplants were IGF, 21 were SGF and 12 DGF. Acute rejection episodes (AR), serum creatinine level and graft survival were analyzed three months, six month and one year after surgery. Young donors and old donors (the edge of 60), normal pedicle and reconstructed pedicle were considered.
Results: SGF patients showed worse results considering acute rejection, creatinine level and graft survival in comparison with IGF but better than DGF group. Donor age and additional vascular reconstruction did not significantly modify the outcomes. One year graft survival was better in IGF group than other two groups. Creatinine was worse in SGF group than IGF group – 1.9±0.7 mg/dl vs. 1.3±0.7 mg/dl, but better than DGF group – 2.5±0.5 mg/dl at 12 months, AR rate was 19.44% (14) in IGF group, 38.09% (8) in SGF group and 58.33% (7) in DGF group.
Conclusions: Slow graft function has to be considered in appreciation of graft dysfunction. Patients developing SGF have a worse outcome than patients with IGF but similar, or in special cases better than patients developing DGF. Despite they did not need dialysis, SGF patients show worse creatinine level and graft survival and higher acute rejection than IGF. Even mild to moderate post-transplant dysfunction can have a negative impact in graft function and survival.

MP-18.12
Simultaneous Ipsilateral Native Nephrectomy With Kidney Transplantation is Safe and Beneficial for ESRD Patients With Polycystic Kidney Disease

Morita K[1], Iwami D[1], Fukuzawa N[1], Tanabe T[1], Sasaki H[1], Miura M[2], Shinohara N[1], Nonomura K[1]
[1]Dept. of Urology, Hokkaido University Hospital, Sapporo, Japan; [2]Dept. of Renal Transplantation Surgery, Sapporo Hokuyu Hospital, Sapporo, Japan

Introduction and Objective: Prevention of perioperative complication related to enlarged polycystic native kidney is mandatory for kidney transplantation for patients of end-stage renal disease (ESRD) with polycystic kidney disease (PKD). Enlarged native kidney with PKD was simultaneously removed at kidney transplantation in order to secure allograft space at our institution. We reviewed clinical course and outcome of kidney transplantation for ESRD patients with PKD retrospectively.
Materials and Methods: Eleven patients (6 male and 5 female, medium age 54 ranged 37-67 y.o. at the transplantation) were enrolled in this study. Median postoperative observation period was 35 (9-134) months. Clinical backgrounds, surgical information, postoperative complications, and natural course of remaining kidney were evaluated.
Results: Inheritance of PKD was autosomal dominant in 10 and sporadic in 1. Five patients underwent transplantation preemptively. Donor source included living related in 10 patients, deceased donor in 1, and ABO blood type incompatible in 5. Native ipsilateral kidney was simultaneously removed with the transplantation except for one case whose native kidney had been removed previously due to infection. Median total operation time was 8.51 (5.06-11.51) hours. Median blood loss was 600 (530-1510) ml. All recipients are alive with functioning graft. Median nadir of serum creatinine level was 0.92 (0.5-1.9) mg/dl. Median current serum creatinine level is 1.02 (0.67-3.17) mg/dl. The patients experienced acute rejection in 4, viral infection in 2, bacterial native kidney infection in 2 (nephrectomized in 1), and ileus in 1. Remaining kidney size was reduced in 6 patients, no change in 4, and increased only in 1 patient who underwent native nephrectomy 11 years after the transplantation.
Conclusions: Native kidneys of PKD patients mostly reduce in size following successful kidney transplantation. Ipsilateral nephrectomy for the purpose of securing allograft space at the transplantation is safe and preferable procedure.

MP-18.13
Restored Kidney Transplant After Resection of Renal Cell Carcinoma: Preliminary Results of 10 Cases

Ogawa Y[1], Shiroma S[2], Kojima K[2], Mannami R[2], Mannami M[2], Nishi M[3], Kitajima K[4], Tamaki M[5], Ito S[5], Mitsuhata N[5]
[1]Tokyo-West Tokushukai Hospital, Akishima, Japan; [2]Uwajima Tokushukai Hospital, Uwajima, Japan; [3]Kagawa Rousai Hospital, Marugame City, Japan; [4]Kagoshima Tokushukai Hospital, Kagoshima, Japan; [5]Okinawa Chubu Tokushukai Hospital, Okinawa, Japan; [6]Kure Kyosai Hospital, Kure, Japan

Introduction and Objective: Kidneys after nephrectomy for small renal cell carcinomas (RCC) have been considered as a potential source for solving the organ donor crisis. Buell, Mannami, and Nicol respectively reported 14, 8, and 31 transplant procedures using kidneys after resection of RCC. Nalesnik et al. recently performed the first step towards evaluating the risk of cancer transmission to optimize organ usage. However, no prospective data are available on the outcomes. To address this issue and raise awareness, we performed a prospective clinical trial that utilized resected kidneys for transplant into unrelated recipients after restoration.
Materials and Methods: Our study of restored kidney transplant had an estimated enrollment of 5 patients with one year of follow-up and was approved by Tokushukai Joint Ethics Committee and registered with U.S. ClinicalTrials.gov. Donors were selected from among patients who opted to undergo nephrectomy for small RCC after extensive discussion of other possible treatment modalities. After nephrectomy, the tumor was removed from each kidney, which was restored and transplanted into an unrelated recipient who was selected by a third-party selection committee based on the blood group match, high clinical evaluation score, and negative cross-match test. The trial was extended to enroll another 5 patients after the fifth transplant because of strong requests from other patients.
Results: In the initial trial, five men aged 51-79 years were the kidney donors. The nephrometry RENAL scores for their renal tumors (Kutikov-Uzzo) were 5-7, suggestive of low-moderate complexity. A total of 56 dialysis patients aged 31-83 years (mean: 58.7 years) were enrolled as candidate recipients. Two recipients had a history of kidney transplant. All patients received triple immunosuppression and four are steroid-free. Four recipients have experienced rejection episodes so far and the latest serum creatinine levels range from 1.21 to 2.58 mg/dl after 17 to 27 months of follow-up. There has not been

any recurrence of RCC. In the extended trial, 5 patients aged 46-65 years have undergone restored kidney transplant so far and their recent creatinine levels range from 1.00 to 1.94 mg/ml without tumor recurrence at 1 to 14 months after transplant.
Conclusions: Selected candidates can benefit from restored kidney transplant, achieving good renal function without recurrence of RCC. Transplant candidates may benefit from accepting these marginal kidneys (discarded kidneys with small RCC) in exchange for a shorter waiting time on dialysis.

MP-18.14
Impact of Pre-transplant Dialysis Duration, Bladder Capacity, and Length of Submucosal Tunnel of Ureteroneocystostomy on the Prevalence of Vesicoureteral Reflux to the Graft and Graft Survival
Satoh S[1,2], Obara T[2], Inoue T[2], Takayama K[2], Nara T[2], Numakura K[2], Saito M[2], Narita S[2], Tsuchiya N[2], Habuchi T[2]
[1]Div. of Renal Replacement Therapeutic Science, Akita University School of Medicine, Akita, Japan; [2]Dept. of Urology, Akita University School of Medicine, Akita, Japan

Introduction and Objective: atients with anuria due to long-term dialysis show a distinct decrease in the bladder capacity and compliance. It can be difficult to make a submucosal tunnel of adequate length to prevent vesicoureteral reflux (VUR) with a small bladder capacity. This study investigated the impact of the pre-transplant dialysis duration, bladder capacity, and the length of submucosal tunnel of ureteroneocystostomy on the prevalence of VUR to the graft, and its influence on the graft survival.
Materials and Methods: We have employed anti-reflux ureteroneocystostomy using an anterior extravesical technique without a stent. A submucosal tunnel was created at approximately but less than 3 cm between 1998 and 2006 (Group 1, n=102) and more than 3 cm since 2007 (Group 2, n=62). Voiding cystography was performed in 164 adult renal transplant recipients immediately before and one year after transplantation to measure the bladder capacity and confirm the existence of VUR.
Results: The median age (range) was 46 (19-71) years old. The median pre-transplant dialysis duration was 60 (0-426) months. The median pre- and post-transplant bladder capacity was 165 (15-600) and 376 (117-1,000) ml, respectively. The bladder capacity and compliance expanded more than 2-fold from pre-transplantation to 1-year post-transplantation. Thirty-six (22%) patients had VUR to the graft. A significant difference was found between Groups 1 and 2 in the dialysis duration (72 vs. 40 months, respectively, p=0.00036), pre-transplant bladder capacity (134.5 vs. 215.7ml, respectively, p=0.00019), and the prevalence of VUR (n=30, 29.4% vs. n=6, 9.7%, respectively, p=0.002). In addition, the prevalence of VUR in patients with less than a 100-ml pre-transplant bladder capacity was 53.3% in Group 1 and 16.7% in Group 2. This indicates that it is important to make a submucosal tunnel over 3 cm long to prevent VUR to the graft. However, there was no difference in 10-year death-censored graft survival between patients with VUR (100%) and those without VUR (78.5%) (Log-rank p=0.083).
Conclusions: Long-term dialysis, pre-transplant small bladder capacity, insufficient length of submucosal tunnel of ureteroneocystostomy may increase the risk of VUR.

MP-18.15
Clinical Outcomes of ABO-Incompatible Kidney Transplantation
Uchida J[1], Machida Y[1], **Kuwabara N**[1], Iwai T[2], Naganuma T[1], Kabei K[1], Tachibana H[1], Kohyama Y[1], Kumada N[3], Nakatani T[1]
[1]Dept. of Urology, Osaka City University Graduate School of Medicine, Osaka, Japan; [2]Dept. of Urology, Yao Municipal Hospital, Osaka, Japan; [3]Dept. of Urology, Suita Municipal Hospital, Osaka, Japan

Introduction and Objective: Due to the severe shortage of deceased donors in Japan, ABO-incompatible living donor kidney transplantation has been performed since the late 1980s. Excellent long-term outcomes have been achieved; the rates of graft survival among these patients are currently similar to those of recipients of ABO-compatible grafts. In the present study, we demonstrated our single-center experience with regard to immunosuppressive protocols, complications, and graft survivals.
Materials and Methods: Among 142 patients with end-stage renal disease who underwent living donor kidney transplantation at our institution between January 1999 and February 2011, 32 cases were ABO-incompatible grafts. We analyzed these patients, focusing on the immunosuppressive protocols, complications, and graft survivals.
Results: Patient and graft survival rates were 100%. One patient experienced antibody-mediated rejection and intractable acute cellular rejection, one had antibody-mediated rejection, and seven had acute cellular rejection.
Conclusions: Although severe rejections may occur due to ABO-incompatibility, a favorable short-term graft survival rate may be expected for recipients of ABO-incompatible kidney transplantation due to recent significant improvements in desensitization and recipient management.

MP-18.16
Comparing the Learning Curves of the "Trainer Hospital" (Basel University Hospital, Basel, Switzerland) vs. the "Trainee Hospital" (Stellenbosch University, Tygerberg Hospital, South Africa) in Retroperitoneoscopic Live Donor Nephrectomy
Van Der Merwe A[1], Ebinger Mundorff N[2], Heyns C[1], Bachmann A[2]
[1]Stellenbosch University and Tygerberg Hospital, Cape Town, South Africa; [2]Basel University Hospital, Basel, Switzerland

Introduction and Objective: Minimal access donor nephrectomy is not easy to perform and guidance as well as adequate laparoscopic experience is needed to change from open donor nephrectomy to minimal access donor nephrectomy via either the retro- or transperitoneal route. We at Stellenbosch University met in 2008 with the Basel group and adapted their technique of minimal access renal donor surgery. We compare the learning curves of both institutions operating in very different circumstances.
Materials and Methods: The first 48 cases in each series were compared. The data in each series were collected prospectively. Compared variables included sex, side of donation, BMI, operative time, warm ischemic time, blood lost, conversion to open, re-operation, hospital stay, complications and deaths. Statistical analysis was performed using Graphpad Instat software. Fisher's exact test for contingency tables and unpaired t-test for comparing means were used. A p-value less than 0.05 were considered significant.
Results: More females were donating in Basel (31) and more males in Tygerberg (26). More right-sided kidneys were removed at Tygerberg (22 vs. 16). BMI, surgical time and blood lost and graft function did not differ significantly. Warm ischemic times were significantly shorter in Basel ($p < 0.001$). Two conversions to open surgery took place in the Basel

group. One patient was re-operated in Basel for chylothorax. Neither unit's patients needed blood transfusions. Hospital stay was significantly shorter in the Tygerberg group (3.2 vs. 10.4 days $p < 0.001$). No deaths occurred in either group.
Conclusions: Retroperitoneoscopic donor nephrectomy appears a safe technique to teach from a first world country to an African country. Comparing both learning curves varied very little. No clinical significant differences were identified.

MP-18.17
Assessment of Predictive Factors of Urological Complications in a Consecutive Series of 738 Renal Transplants at a Single Centre
Volpe A, De Lorenzis E, Zacchero M, Quaglia M, Sogni F, Varvello F, De Angelis P, Giraudo D, Stratta P, Terrone C
University of Eastern Piedmont, Maggiore Della Carità Hospital, Novara, Italy

Introduction and Objective: Urological complications (UCs) after renal transplantation (RT) may increase morbidity, delay graft function, and occasionally lead to graft. We analyze the incidence of UCs and their impact on long-term graft and patient outcomes. We also assessed donor and recipient variables to identify significant risk factors for UCs.
Materials and Methods: We retrospectively analyzed a series of 738 RTs performed at our centre between November 1998 and July 2010. Renal grafts were obtained from living-related donors in 20 and from cadaveric donors in 718 cases. Dual transplants were 35. A Lich-Gregoire ureterovesical anastomosis over a ureteral stent was carried out in all cases. Graft recipient and donor characteristics, perioperative variables, occurrence and type of complications, graft and patients outcomes were recorded in a database. Univariable and multivariable logistic regression analysis was performed to identify risk factors for UCs. Survival curves were generated using the Kaplan–Meier method.
Results: With a median follow-up of 4.8 years (IQR 2.5-7.7), 100 UCs in 91 patients were observed: 30 ureteral obstruction, 14 ureteropelvic junction obstruction, 17 urinary leaks, 32 lymphoceles and 7 surgical wound complications. Urinary leaks were the earliest complications to be detected after RT (17.5 days on average). Univariable analysis showed a significant association between UCs and: donor age ≥50 years ($p=0.03$), recipient age ≥50 years ($p=0.02$), delayed graft function ($p=0.04$), dual transplant ($p=0.002$) and serum creatinine at 6 months ≥2mg/dl ($p=0.01$). At multivariable analysis only dual transplant confirmed a significant association with UCs (OR 2.6; IC95% 1.14-5.92). Overall, graft failure occurred in 12 patients with UCs. Three patients died for a cause that was not correlated with the UC. Five-year graft and patient survival in subjects with UCs was 88.9% and 98.7%, respectively.
Conclusions: The incidence of UCs at our centre is similar to that reported in literature. Dual transplant was the only independent predictive variable associated with the onset of UCs. No significant reduction in graft and patient survival was observed in patients with UCs. In our experience a timely diagnosis and adequate treatment of UCs seem to avoid a significant impact on graft and patient outcomes.

MP-18.18
Is Laparoscopic Living Donor Nephrectomy in Patients with Vascular Anomalies Safe and Effective?
Volpe A, De Lorenzis E, Tarabuzzi R, Giraudo D, De Angelis P, Quaglia M, Zacchero M, Varvello F, Stratta P, Terrone C
University of Eastern Piedmont, Maggiore Della Carità Hospital, Novara, Italy

Introduction and Objective: Laparoscopic living donor nephrectomy (LLDN) requires a challenging learning curve. In the initial part of a surgeon's experience, LLDN can potentially lead to higher morbidity and longer warm ischemia time. We assessed morbidity and outcomes of LLDN in presence of donor's vascular anomalies during the learning curve of a single surgeon.
Materials and Methods: From January 2006 to March 2011, 23 patients underwent LLDN at our centre. The left kidney

MP-18.18, Table 1. Demographic, intraoperative and postoperative variables of donors

	Group A	Group B	p value
No. Gender (%)			
male	2 (25)	5 (33.3)	-
female	6 (75)	10 (66.6)	
Median age (years)	55.5 (49.5-59)	53 (50-64)	n.s.
BMI (kg/m2)	23.75 (22.15-25.4)	24.85(22.6-25.4)	n.s.
Median operative time (min)	227.5 (165-270)	210 (180-235)	n.s.
Median warm ischemia time (s)	140 (120-200)	145 (110-180)	n.s.
Median length of hospitalization (days)	9 (9-11.5)	8 (6-9)	<0.05
Median creatinine at the discharge (mg/dl)	1.3 (1.15-1.4)	1.2 (1-1.5)	n.s. MP-18.18,

MP-18.18, Table 2. Demographic and postoperative data of recipients

	Group A	Group B	p value
Median age (year)	44.5 (30-53.5)	37 (27-45)	n.s.
BMI (kg/m2)	21.65 (20.5-23.7)	23.5 (22.8-24.1)	n.s.
Pre-allograft dialysis rate (%)	50.0	53.3	n.s.
Median postoperative crs at 1 day (mg/dl)	3.15 (2.1-5.75)	2.4 (2-5.7)	n.s.
Median postoperative crs at 3 day (mg/dl)	1.7 (1.4-3.65)	1.7 (1.5-2.9)	n.s.
Median postoperative crs at the discharge (mg/dl)	1.6 (1.35-2.05)	1.5 (1.3-2)	n.s.
Median eGFR at 6 months (ml/min)	71.0 (44-74)	63.0 (57-80)	n.s.
Median eGFR at 12 months (ml/min)	64.0 (61-74)	73.0 (56-81)	n.s.

was always preferred and a classic transperitoneal approach with 4 trocars was used. Preoperative, intraoperative, and postoperative variables were assessed for all patients. Morbidity and outcomes of cases with presence (group A, n=8) or absence (group B, n=15) of donor's renal vascular anomalies at preoperative CT scan were compared. Statistical analysis was performed using Mann-Whitney U and Chi-squared test as appropriate.
Results: Preoperative imaging revealed 10 left kidney vascular anomalies in 8 grafts: early main arterial branches division (n=2), double renal artery (n=6), retroaortic renal vein (n=1) and shorter left renal vein in aorto-caval transposition (n=1). The characteristics of LLDN donors and recipients are shown in Table 1-2. No significant differences in intraoperative and postoperative variables as well as in the rate of complications were observed between group A and group B (Table 1-2). No grafts were lost and no recipient returned to dialysis with a median follow-up of 31 months (IQR 11-46).
Conclusions: The presence of vascular anomalies does not have a significant impact on morbidity and outcomes of donors and recipients during LLDN learning curve.

MP-18.19
Subcutaneous Prosthetic Ureter in Kidney Transplant Patients
Yazdani Kachouei M[1], Gharaati M[2], Zargham M[1] , Nouri-Mahdavi K[1] , Yazdani Kachouei E[3]
[1]Dept. of Urology and Renal Transplantation, Isfahan University of Medical Sciences, Isfahan, Iran; [2]Isfahan Kidney Disease Research Center, Isfahan University of Medical Sciences, Isfahan, Iran; [3]Dept. of Urology, Mazandaran University of Medical Sciences, Sari, Iran

Introduction and Objective: We evaluated the efficacy and complications of using subcutaneous prosthetic ureters as a salvage procedure in transplanted kidneys with recurrent ureteral obstruction. There are rarely reports in this regard.
Materials and Methods: Seven subcutaneous prosthetic ureters were inserted in 7 kidney recipients who had recurrent ureteral stenosis and failed endoscopic and open reconstructive surgeries. The prosthetic ureter consisted of an internal silicone tube covered by a coiled e-PTFE tube. The proximal end of tube was introduced in the transplanted kidney percutaneously. The tube was passed through a subcutaneous tunnel and the distal end was inserted in the bladder through a small suprapubic incision.
Results: Mean follow-up period was 19.4 months. One of the patients reoperated two days after operation because of urinary leakage from the distal end of prosthetic ureter. One case had recurrent urinary infections. No case of tube encrustation was encountered.
Conclusions: Subcutaneous prosthetic ureter is a safe alternative for permanent percutaneous nephrostomy in transplanted kidneys with obstructed ureter and failed endoscopic and open procedures.

MP-18.20
Does the Laparoscopic Nephrectomy Donor Leave the Hospital Earlier than the Open Nephrectomy Donor?
Zomorrodi A, Farshi A, Zomorrodi S
Imam Reza Hospital, Tabriz Medical Science University, Tabriz, Iran

Introduction and Objectives: Kidney transplantation is the best treatment for chronic renal failure (CRF). In this treatment not only the patient will have a normal life but also the kidney transplantation is more cost-effective than other treatment of CRF. One of the major problems in the kidney transplantation is the shortage of the kidney donor. For solving the problem of kidney donor shortage, besides the deceased donor, live kidney donors (related and unrelated) are selected. Two approaches are used for removing kidneys from live donors including: open nephrectomy and laparoscopic nephrectomy. One of the advantages of laparoscopic donor nephrectomy is the early discharge of the donor from the hospital. At our center, we have studied the issue: does the open nephrectomy donor leave the hospital with more delay than the laparoscopic donor nephrectomy?
Materials and Methods: The time of hospital stay of 326 kidney donors (35 females, 291 males) post-operation have been studied retrospectively at the kidney transplant center of Imam Reza hospital from 2005 to 2011.
Results: In 326 kidney donors, 48 donors left the hospital the second day following the operation, 276 donors on the third day following the operation, one donor on the eighth day following the operation, and one donor on the sixth day following the operation. In all the kidney donors the operation was done through trans flank incision and retroperitoneal and without the rib resection.
Conclusions: In this study, considering the hospital stay time of open nephrectomy donors, it is understood that nearly hundred percent of donors had left the hospital the third day following the operation, so it seems that the hospital stay duration for the open nephrectomy donors is comparable with the hospital stay time of laparoscopic nephrectomy donors.

Moderated Posters Session 19 Stones: Medical Management and New Technologies Wednesday, October 3 13:13-14:45

MP-19.01

The Clinical Courses of the Patients Who Chose SWL as the Initial Treatment Followed by Additional Procedures During 2007-2011 in Saitama Medical University

Fuminari H[1], Hirohumi S[1], Minoru H[1], Yoko N[1], Hitoshi Y[1], Hirotaka A[1], Kaori M[2]
[1]Saitama Medical University, Saitama, Japan; [2]Kanetsu Hospital, Takasaki, Japan

Introduction and Objective: The initial surgical treatment of urolithiasis is basically chosen purely based on medical indications. SWL is especially the choice for the patients with the stone in upper urinary tract who requests minimally invasive treatment. However, either doctor's preference or patient's request could affect decision-making, which may not lead to the best clinical course. Therefore further treatment after SWL failure should be carefully communicated to the patient. In this report, we investigated the clinical courses of cases who chose SWL as the initial treatment, retrospectively.
Materials and Methods: During these five years (2007-2011), 450 cases were treated in our department. There were 46 PNL, 365 TUL and 350 SWL done for these cases. Among these, 45 cases were treated, choosing SWL as the initial procedure, and then required further treatment.
Results: SWL is usually indicated for a stone in the upper urinary tract above pelvic bone in our department. Additional treatments were selected based on the result of stone fragmentation at least one month after initial treatment. Among these 45 cases, 29 cases had chosen SWL as the second procedure either based on the medical condition or patient's request. Of these 29 cases, stones in 10 cases had been successfully removed. Two cases had requested only SWL in spite of repeated procedures, but finally accepted other endourological procedures. One case experienced subcapsular hematoma after second SWL. TUL was selected for 16 cases as the second procedure. Of these 16 cases, stone treatments had been finished by the second procedure in 9 cases.
Conclusions: The result of SWL is often difficult to predict, although it is clearly less invasive and less affected by surgeon's skill than other procedures. Recklessly repeated SWL may lead to not only wasting time, but also difficult conditions for the next endourological procedure, such as severe adhesion of the stone to ureteral wall, migration of fragments into ureteral wall and so on. TUL has become a strong choice for the patients with upper ureteral stone. It has become safer and more effective because of new devices. We should inform patients of appropriate choices after SWL failure for those who selected SWL as the initial treatment.

MP-19.02

Ureteropyeloscopic Treatment of Large, Complex Intrarenal and Proximal Ureteral Calculi

Cohen J[1], Cohen S[2], **Grasso M**[1]
[1]Dept. of Urology, Westchester Medical College, Valhalla, USA; [2]Dept. of Urology, Lenox Hill Hospital, New York, USA

Introduction and Objective: In this study, we address complex upper urinary tract calculi with retrograde ureteroscopy in a select group of patients who were poor candidates for percutaneous therapies. We define the safety and efficacy of retrograde endoscopic lithotripsy in treating large, noninfectious stone burdens.
Materials and Methods: A total of 145 patients with 164 large (2 cm or greater diameter on standard imaging) upper urinary tract stone burdens were chosen for retrograde ureteroscopy. Patients were treated with small diameter fiberoptic ureteroscopes and holmium laser lithotripsy by a single surgeon. Second-look ureteroscopy was performed in patients in whom there was a high index of suspicion of significant residual fragments. We defined stone clearance as no fragments or a single fragment less than or equal to 4 mm in diameter on standard radiograph and sonography at 3 month follow-up.
Results: Our study included 103 male patients and 42 female patients with an average age of 55 years (range 16 to 86). The mean stone diameter was 29 mm (range 20 to 70 mm) and included 36 partial staghorn stone burdens (mean diameter 37 mm) and 10 bilateral simultaneous stone burdens. Overall, 266 ureteroscopies were performed on 164 stone burdens (1.6 procedures per stone burden), clearing 143 stone burdens (87%). Highest clearance rates were observed for proximal ureteral stones (97%), and renal pelvic stones (94%), while the lowest clearance rates were observed for lower pole renal calculi (83%), and staghorn calculi (81%). Three patients progressed to percutaneous therapy due to infectious material encountered at the time of ureteroscopy or inaccessible stone burdens because of infundibular stenosis. There were five minor post-operatative complications, including 4 fevers and one patient with gross hematuria and clot retention, and no major intra-operative complications.
Conclusions: In select patients, large, complex upper urinary tract calculi can be treated safely and efficiently with retrograde endoscopic techniques. Staged, retrograde, flexible ureteroscopy is an alternative to percutaneous therapy with acceptable efficacy and low morbidity.

MP-19.03

Comparison of Outcomes of Complete Supine and Standard Prone Percutaneous Nephrolithotomy in Kidney Stones

Khosropanah I, Falahatkar S, Allahkhah A, Shakiba M, Mohammad Hoseini M
Urology Research Center, Guilan University of Medical Sciences, Rasht, Iran

Introduction and Objective: Percutaneous nephrolithotripsy (PCNL) is performed in four different positions. The usual approach, standard prone PCNL, has some disadvantages including: patient discomfort, circulatory and ventilatory difficulties, especially in the obese. We compared complete supine approach with prone in staghorn and multiple stones to evaluate: the renal stone free rate, the blood transfusion rate, the drop of hemoglobin rate and the hospital stay rate.
Materials and Methods: Our study included 92 patients with staghorn and multiple kidney stones who underwent PCNL during February 2007 to March 2011 in our center. The data of age, gender, and weight, stone burden (according to KUB and sonography) was documented. The stone free rate, post operative hemorrhage, drop of hemoglobin rate, the hospital stay rate and operation time, were compared and analyzed with T-test and chi-square.
Results: Our study included 48 (complete supine) and 41 patients (Standard prone) of 92 patients who have undergone PCNL. From patients in the csPCNL group, PCNL was done in right kidney in 29 patients (60.4%) and left kidney in 19 patients (39.6%) and from patients in the prone group, PCNL was done in right

kidney in 19 patients (46.3%) and in the left side in 22 patients (53.7%). Only one supracostal access was done in the prone group, and in all other patients subcostal access was used to reach the stones. Our study findings revealed that the supine PCNL method had lower post surgical complication and also duration of hospitalization and fever to prone PCNL method with no statistical difference in stone free rate, bleeding requiring transfusion, hemoglobin drop, operation duration in staghorn and multiple kidney stones patients.
Conclusions: Unlike the previous image that the supine method wasn't a good choice for multiple and staghorn stones, our study showed we can use this method, with two important advantages: fewer postoperative complications and reduced hospital stay. Selection of surgery method depends on the surgeon's skills, but it is better for the complete supine PCNL to be used in planning training for all urologists.

MP-19.04
The Efficacy and Safety of Tubeless Percutaneous Nephrolithotomy
Braticevici B, Salaheddin Y, **Badescu D**, Radavoi D, Jinga V
Dept. of Urology, "Prof. Dr. Th. Burghele" Clinical Hospital Bucharest, Romania

Introduction and Objective: Tubeless percutaneous nephrolithotomy (PCNL) represents an alternative technique to the standard PCNL that replaces the nephrostomy tube with the internal ureteral drainage. Hereby we evaluate and compare the results of tubeless PCNL versus standard PCNL.
Materials and Methods: A retrospective study was performed on 467 patients with pyelocalyceal lithiasis that underwent percutaneous nephrolitotomy between January 2007 and March 2011. Patients were divided in two groups and the results were compared: 190 patients in which standard PCNL was performed and 277 patients who were offered tubeless PCNL.
Results: In the group of patients that underwent tubeless PCNL: the mean stone burden of the calculus was 3.35 cm^2 (± 0.67), postoperative hemoglobin values drop on average with 1.85 g/dl (± 0.80), average postoperative hospital stay was 3.2 days (±1.02), patients returned to normal activity in 11 days (±1.65). A 92.6% stone free rate was achieved. In the group of patients that underwent standard PCNL: the mean stone size was 4.63 cm^2 (±0.88), mean postoperator hemoglobin drop was 2.4 g/dl (±0.76) , the mean length of postoperative hospital stay was 5.1 (±1.37) days, patients returned to normal activity in 16 days (±2.24), an 90.3% stone free rate was achieved.
Conclusions: Tubeless PCNL is a safe and efficient alternative technique to standard PCNL that reduces the number of the hospitalization days, decreases the postoperative discomfort and the necessary of analgesic and may be used in selected cases. Both techniques were safe and effective for the management of renal calculi.

MP-19.05
Effectiveness of Combined Intrarenal Surgery (ECIRS) in Management of Large and Complex Kidney Stones
Zelvys A, Jankevicius F, Januska G, Snicorius M
Vilnius University Hospital Santariskiu Clinic, Center of Urology, Vilnius, Lithuania

Introduction and Objective: PCNL combined with retrograde ureteroscopy can be beneficial and lead to stone-free results. Aim of this study is to retrospectively analyze the efficiency of endoscopic combined intrarenal surgery (ECIRS) and compare it to the percutaneous nephrolithotomy (PCNL) alone.
Materials and Methods: From January 2011 to February 2012, 79 patients with kidney stones were selected for PCNL or ECIRS surgery. For ECIRS patients with large or multiple stones were selected. Thirteen patients underwent ECIRS (group A) whereas the other 66 underwent PCNL (group B). Patients' mean age in group A was 64,92 ± 8.15 years , in group B – 59,84 ± 12,9 (p=0.078). In group A 2 patients (15.4%) had single stone and 11 (84.6%) had multiple stones. In group B 31 patient (41%) had single stone and 35 (53%) had multiple stones. In group A 5 patients underwent ECIRS in Galdakao-modified supine Valdivia (GMSV) position, 4 in prone and 4 in supine position. In group B 8 patients underwent PCNL in GMSV position, 48 in prone position and 23 on supine position. In group A 9 (69.2%) patients scored 2 ASA points and 4 (30.8%) patients 3 points. In group B 47 (70.9%) patients scored 2 points and 19 (29.1%) patients scored 3 points. Mean body mass index in group A was 26.4 ± 3.26 while in group B 30.85 ± 14.1. Stone free rate after first operation in group A was 92.3% and in group B- 86.4%.
Results: Mean operative time in group A was 119.62 ± 28 min and in group B – 91.67 ± 24.5 min. Stone free rate after first operation in group A was 92.3% and in group B- 86.4%. No complications were registered in A group and 5.2% in B group. Hospitalization time after operation was 5.4 days in group A and 5.8 in group B.
Conclusions: These data show that combined intrarenal surgery achieve greater stone free rate than PCNL alone. There is no significant difference between ECIRS and PCNL in duration of hospitalization whereas operative time for the management of large and/or complex kidney stones in ECIRS group is longer.

MP-19.06
One Shot Tract Dilation for Percutaneous Nephrolithotomy: Is it Safe and Effective in Preschool Children? A Randomized Controlled Trial
Hosseini S[1], Basiri A[2], Kashi A[2], Mirjalili S[2]
[1]Dept. of Urology, Tehran University of Medical Sciences, Tehran, Iran; [2]Dept. of Urology, Shahid Labbafinejad Medical Center and Urology and Nephrology Research Center, Tehran, Iran

Introduction and Objective: To evaluate the safety and feasibility of percutaneous tract dilation by the one stage method in preschool children.
Materials and Methods: This study was conducted at University Hospitals as a randomized controlled trial between April 2007 and March 2011. All preschool (<6 years) children candidate for percutaneous nephrolithotomy in the service of one of the authors whose parents agreed to participate were enrolled. Patients were assigned to dilation by serial metallic dilators (group I) or dilation by one stage Amplatz according to Frattini et al. (group II). Perioperative data and patients' demographic data was recorded prospectively by the operating surgeons. The primary endpoint of interest was fluoroscopy time. Secondary endpoints included tract creation and dilation time, success, and complications. Stone-free status was defined as residuals ≤ 3 mm.
Results: Twenty-two patients were enrolled (eleven patients in each group). Age, stone size, operation success and operation time was not statistically different between studied groups. The most stone composition was calcium oxalate in both groups. The mean ±SD of access times and fluoroscopy time times in groups I and II were 5.9±1.5 minutes versus 7.3±1.2 and 22.0±5.6 seconds versus 70.0±8.9. (P>0.05 and P<0.001

respectively). Postoperative complications included one case of postoperative fever lasting less than 48 hours in group I.
Conclusions: Percutaneous tract dilation by the single stage method is safe and effective. Also, it is associated with considerably less radiation exposure in preschool children.

MP-19.07
Percutaneous Nephrolithotomy (PCNL): 10 Years' Experience with 7200 Cases, Report of Results and Complications in Southern Iran
Hosseini M, Yousefi A, Hassanpour A, Inaloo R, Ahmad E, Manaheji F, Ariafar A, Aminsharifi A, Tadayyon A, Shakeri S, Abbasi M, Haghpanah A
Shiraz, Jahrom and Bousher University of Medical Sciences, Shiraz, Iran

Introduction and Objective: Today PCNL is the modality of choice for treatment of large, complex nephrolithiasis, however such as open surgery, it has complication. We evaluated the result and complications in our training, referral center.
Materials and Methods: Between September 2002 and March 2012, a total of 7494 renal units of the 7236 adult patients, 4121 men, 3115 women, mean age 38.5 year (20-78) and mean stone size 32.6 mm (22-63) underwent PCNL by experienced, training urologists (Fellowships), and residents in two referral centers. We recorded the results and complications of our patients.
Results: Early stone-free rate was 88.5% and after 3 weeks with ancillary procedures (URS, SWL) 94%.Intra and postoperative complications including access failure 87(1.1%), intraop hemorrhage 248(3.3%), transfusion 219 (2.9%), clot retention 31(0.4%), late hematuria in 2-3 weeks postoperative period 98 (1.3%) resulted in 4 nephrectomy and 23 angioembolization, pelvicalyceal perforation 142 (1.8%), conversion to open surgery 24 (0.3%) resulted in 7 nephrectomy and 17 stone removals and kidney repair, suspicious to visceral injury 13(0.1%), fever>38.3 C 223(2.9%), infection 24(0.3%), perinephric collection needed drainage 21(0.26%), pneumo/hydro/hemothorax 39 (0.5%) 8 needed chest tube insertion, hyponatremia (PCNL Sx.) 16 (0.2%), renal failure of normal functioning kidney 14 (0.1%), scapular fracture 1, mortality 13 (0.1%) including sepsis 3, Myocardial infarction 9, unknown 1),re-PCNL for large residual fragment or first access failure 229 (3%). Of course some late complications were managed by referring physicians and may be were not referedr/reported to us.
Conclusions: Although PCNL seems the best treatment modality for large renal stones as a less invasive method, minor ana major complications should be in the mind of surgeon as in open procedure.

MP-19.08
Percutenious Nephrolithotomy (PCNL) in Paediatric Urolithiasis: Our 15 Years Experience
Amlani J[1], **Rajyaguru D**[2], Thakker S[3]
[1]Urocare Hospital, Rajkot, India; [2]Urocare Hospital, Mehsana, India; [3]Urocare Hospital, Patan, Gujarat, India

Introduction and Objective: In India there is a high prevalence of urolithiasis in our region. Minimally invasive treatment of urinary tract calculi in children is recommended due to high chances of stone recurrence. PCNL is an established treatment used in children with renal calculi. We report our last 15 years experience with PCNL for treating renal stone in children.
Materials and Methods: We retrospectively reviewed the results and outcome of PCNL in children (below 15 years old) who were treated at the three different urology departments from 1997 to 2012. One-hundred-twenty-two patients in the age group of 2 to 15 years underwent PCNL for nephrolithiasis during this period. Among these patients, 90 were male & 32 were female. Ninety-five patients had single stone & 27 had multiple stones. The stone sides varied from 9 mm to 3.1 cm and average size was 2.2 cm. The commonest presenting features were urinary tract infection, pain and heamaturia. Patients had preoperative blood & urine analysis, ultra-sonography of KUB, IVU, CT-KUB were done. All Patients underwent PCNL in single stage using wolf adult nephroscope with only inner sheath. Since last 2 years we have been using dedicated pediatric nephroscope. All procedures were done under general anesthesia. Puncture and tract dilatation was done under fluoroscopic control. The size of amplatz was 20 F initially and then 16 F. Pneumatic lithotripsy was used to fragment the stone. We reviewed operative time, Hb drop, stone clearance & complications. Follow-up KUB X ray was done in all cases to check stone clearance. Variables assessed include patient age, sex and stone burden. PCNL root, calyceal access and number of puncture tracts also recorded.
Results: One-hundred-twenty-two PCNL procedures were performed. Patient age at operation was ranging from 2 years to 15 years. About 30% patients were of preschool age group (≤5years of age). M: F ratio was 2.9:1. Stone burden ranged from 9mm to 3.2cm with average size 2.2cm. During the procedure mean Hb drop was 1.16±0.7 gm. About 8.2% patients required blood transfusions. Intra and post-operative complications includes extravasation of fluid in 2.6% and urosepsis in 1.9%.Complete clearance was achieved in 89% of patients in immediate post-operative period and 8% patients who had stone fragments less than 5mm which cleared at 3 months follow-up.
Conclusions: PCNL is safe & effective procedure in pediatric age group. It can be performed in single stage. Even complex and staghorn calculi can be tackled with this approach with good clearance rates and acceptable morbidity. Miniaturization of instruments will decrease the morbidity.

MP-19.09
Endovascular Treatment of Percutaneous Nephrolithotomy Hemorrhagic Complications
Jinga V[1], Dorobat B[2], Braticevici B[1], Salaheddin Y[1], Diaconescu D[1], **Radavoi G**[1]
[1]Dept. of Urology, "Prof. Dr. Th. Burghele" Clinical Hospital Bucharest, Romania; [2]Dept. of Interventional Radiology, Emergency University Hospital Bucharest, Bucharest, Romania

Introduction and Objective: The percutaneous nephrolithotomy (PCNL) represents a safe and efficient procedure in the surgical management of renal lithiasis. The hemorrhagic complications include: intraoperative bleeding, hematoma, arterio-venous fistula and pseudo-aneurysm. In most of the cases the injuries are self-limited and do not need a surgical intervention. The purpose of this study is to prove the efficacy of the endovascular renal approach with selective/over selective embolisation in the control of severe post-PCNL hemorrhages.
Materials and Methods: We retrospectively analyzed 1650 patients who had undergone PCNL for removal of renal calculi between July 2007 and February 2012. A number of 205 hemorrhagic complications were observed but only 19 (1.15%) patients with a mean age of 54.5 years presented severe post PCNL hemorrhage that required angiography and/or embolization for bleeding control. The arterial approach was femoral (five cases) or brachial (fourteen cases). After initial aortography a selective renal

arteriography is performed. Rapid filming sequences are necessary to identify arteriovenous fistulas or the origin of pseudoaneurysms. Vascular lesions are embolised using micro-sphere or metallic coils.
Results: The mean time between PCNL and moment of angiography was 7.2 days for the hospitalized patients and 16 hours for those with tardive post PCNL bleeding (two cases). Renal arteriography revealed arteriovenous fistula in 4 patients (21%), pseudoaneurysm in 12 (63.5%) and no lesion in 3 patients (15.7%). The hematuria persisted 24 hours after the embolisation in one case and an emergency nephrectomy was necessary. In 15 patients, successful embolization of the offending vessel was achieved. Metallic coils were used in eight patients (1 or 2 spirales), microspheres in five, and coils plus microspheres in three patients. The average of the transfused units was of 2.6 units (between 0 and 5).
Conclusions: The incidence of post PCNL severe hemorrhagic complications is low (1.1%) which indicates PCNL as a safe and efficient surgical technique. The gold standard treatment in post PCNL vascular renal lesions is the selective angioembolization. Endovascular treatment of vascular complications is a relatively easy intervention in experienced centers, with high rate of success and immediate benefits.

MP-19.10
Post-Percutaneous Nephrolithotomy Septic Shock and Severe Hemorrhage: A Study of Risk Factors
Wang Y, Jiang F, Hou Y, **Wang C**
Dept. of Urology, First Hospital of Jilin University, Changchun, China

Introduction and Objective: To identify the risk factors predicating septic shock and severe hemorrhage in percutaneous nephrolithotomy (PCNL).
Materials and Methods: We retrospectively analyzed 420 renal calculi patients who underwent ultrasound-guided percutaneous nephroscope/ureteroscope holmium laser lithotripsy procedures from March 2005 to May 2011 in the First Hospital of Jilin University. Data on patients who experienced infectious shock requiring anti-shock therapy and severe renal bleeding requiring angiographic renal embolization or nephrectomy were compared with the other patients using univariate analyses. We analyzed the characteristics of pre-hospitalization urine white cell count, stone position, hydronephrosis, calculus diameter, puncture times, operation time and fragment method.
Results: Of 420 patients, 10 (2.4%) encountered septic shock and 4 (1%) had severe hemorrhage. The two significant risk factors for infectious shock were preoperative urine white cell count (WBC) and operation time. For septic shock, there was no significant difficult between the use of standard nephroscope or less slender ureteroscope (P=0.973). For severe bleeding, the absence of hydronephrosis and the puncture times were significant risk factors. Operation time over 90 minutes was associated with both septic shock and sever renal bleeding (P=0.017). In contrast, the risk of encountering severe renal bleeding was higher if the nephroscope rather than the ureteroscope was used (P=0.045).
Conclusions: Operation time was a risk factor for both septic shock and severe hemorrhage. Pre-operative anti-inflammatory therapy could reduce the possibility of septic shock after PCNL. The patients without hydronephrosis before operation were more likely to suffer severe renal bleeding. Reducing the intra-operational puncture time can reduce the probability of severe post-PCNL hemorrhage. The diameter of the instrument did not influence the occurrence of septic shock. However, the use of comparatively gross nephroscope passage was likely to result in severe renal bleeding.

MP-19.11
Prospective Randomized Study to Compare Safety and Efficacy of Micro Percutaneous Nephrolithotomy (Micro Perc) in Comparison to Retrograde Intra Renal Surgery (RIRS)
Vyas J, Doshi A, Ganpule A, Mishra S, Raghuram, Sabnis R, Desai M
Muljibhai Patel Urological Hospital, Nadiad, India

Introduction and Objective: Prospective analysis was done to study safety and efficacy of Microperc in relation to RIRS for 10-15 mm renal calculi by evaluating stone-free rates and associated complications.
Materials and Methods: Prospective chart review was done of 23 patients who underwent either Microperc (n=11) or RIRS (n=12) by standard techniques for 10-15 mm renal stones. Parameters studied were mean operative time, intraoperative and postoperative complications according to clavien system. Microper was done with 4.85-Fr (16 gauge) 'All-seeing needle' using a 200 um laser fiber. RIRS was done with Storz FLEX-X™2 Uretero-Reno-Fiberscopes.
Results: Mean operative time was comparable: 60+37.5 (45.6- 94.6 min) for microperc group and 57.5+ 28.6 (42.1-86.5 min) for RIRS groups. Intraoperative complications were stone migration in 2 cases in Microperc group and extravasation in 1 case of RIRS group. One patient in microperc group needed a double J stenting (Clavien II grade) for small residual stone postoperatively. Postoperative visual analogue score (4.1 vs 3.5), average hospital stay (49.45+ 12.6 vs 49.6 + 10.6 hrs) were comparable in both the groups. Stone-free rate was 100% in both groups.
Conclusions: Our interim analysis showed that the microperc is as safe and effective as RIRS for 10-15 mm renal stones.

MP-19.12
Suprapubic-Assisted Embryonic Natural Orifice Transumbilical Endoscopic Surgery (E-NOTES) for Pyelolithotomy and Ureterolithotomy with Report of 50 Cases
Wu G, Wang X, Zhang G, Yuan Y, Xiao R, Long D, Wu Y, Xue Y, **Zou X**
Dept. of Urology, First Affiliated Hospital of Gannan Medical University, Ganzhou, China

Introduction and Objective: To describe the suprapubic-assisted embryonic natural orifice transumbilical endoscopic surgery (SAE-NOTES) for pyelolithotomy and ureterolithotomy, and evaluate its feasibility, safety and efficacy.
Materials and Methods: Fifty patients, including 31 males and 19 females, with renal pelvic or ureteral calculi, were subjected to SAE-NOTES in our center. The mean age was 41.3 years (range 18 to 67 years). The calculi were found on left side in 18 cases, on right side in 25, and on both sides in 7. The calculi were 13 to 35 mm in diameters. Renal pelvic calculi occurred in 4 cases, upper ureteral calculi in 46. Under general anesthesia, the patients were positioned in lateral decubitus with affected side elevated. One 5- and 10-mm trocars were inserted at the umbilical edge. A 10-or 5-mm trocar was inserted into abdominal cavity below the ipsilateral pubic hairline. The method for pyelolithotomy and ureterolithotomy was same as the standard laparoscopy, under direct vision achieved by a 10-mm conventional 30°or 5-mm flexible-tip 0°laparoscope placed through the trocar below the pubic hairline.
Results: All procedures were successfully performed, and the stones were successfully removed once time. The unilateral operative time was between 45 and 145

min with a mean of 70 min. The bilateral operative time was 100 and 160min, respectively. The intraoperative mean estimated blood loss was 40 ml (range 20 to 60 ml). There was no major complication during perioperation. The drainage below the pubic hairline was removed after postoperative day 3 to 4. The hospital stay was from 5 to 7 days. During the follow-up (3 to 20 months), the incision at the umbilicus was not obvious, and no recurrent calculus and ureterostenosis was found. The scar below the pubic hairline was not detectable because of the covering of the pubic hairs.
Conclusions:SAE-NOTES for pyelolithotomy and ureterolithotomy appears to be feasible, safe and effective. It would not only decrease the difficulty of operation, but can also lead to improved cosmetic results.

MP-19.13
Extracorporeal Shockwave Lithotripsy: Another Confirmation of Its Efficiency
Manu R, Constantiniu R, Manu M, Gluck G, Harza M, Gingu C, Stefan B, Surcel C, Baston C, Sinescu I
Center of Uronephrology and Renal Transplantation, Fundeni Clinical Institute, Bucharest, Romania

Introduction and Objective: Extracorporeal shockwave lithotripsy (ESWL) represents a well-established and effective treatment of urinary stones in adult patients. Even after 40 years of experience with ESWL ignorance about indication varieties and side effect of ESWL still causes unnecessary stone surgery or unnecessary endourological procedures. Our study was designed to assess the indications varieties of ESWL, the technique, complications and long term results of ESWL. Follow-up series at 5, 10 and 15-years were analyzed.
Materials and Methods: Between 1991 and 2011, 10743 patients (the youngest 3 years, the oldest 96 years) were treated by ESWL for urinary stones in our center - 24036 ESWL procedures were performed. Investigational protocol: reno-vesical ultrasound, IVP exam, bioumoral exams: urea, creatinine, hemoleucogram, coagulogram, urinalysis, uroculture. In 6655 cases the calculus was located in the renal pelvis, in 1395 cases a single calculus was located in the calyx, 858 had multiple caliceal lithiasis, 629 cases had pyelocaliceal lithiasis, in 966 cases the calculus advanced in the lumbar ureter, 177 had stag horn lithiasis and 54 patients had distal ureteral lithiasis. Stone size was in 27% < 10 mm, in 53% 11-20 mm, 16% 21-30 mm and in 4% larger than 30 mm. General intravenous anesthesia has been used in 5488 cases.
Results: The overall "stone free" rate was 91% (9768 patients). CIRF (Clinical Insignificant Residual Fragments) were noticed in 3,5% of cases with multiple operated lithiasis and residual hydronephrosis. In 590 cases (5,5%) the ESWL was inefficient and the patients underwent surgery. For the follow-up we analyzed renal function (BUN and creatinine level, renal ultrasound, IVP or renal scintigraphy), blood pressure and skeletal radiography. No late complications (renal failure, skeletal deformation) were noticed during a mean follow-up period of 48 months.
Conclusions: ESWL is effective in patients with urinary stones - "stone-free" rate was 91%. It can be safely performed without long-term side effects.

MP-19.14
Management of Cystinuric Patients in a Dedicated Stone Clinic Decreases Stone Events
Cohen J[1], Glickman L[2], Goldfarb D[3], **Grasso M**[1]
[1]Dept. of Urology, Westchester Medical College, Valhalla, USA; [2]Dept. of Urology, Lenox Hill Hospital, New York, USA; [3]Dept. of Medicine, New York University Langone Medical Center, New York, USA

Introduction and Objective: Patients with cystinuria frequently undergo multiple surgical procedures throughout their lifetime, with potential loss of renal function and attendant morbidity. We investigate whether referral to a dedicated stone clinic, with emphasis on minimizing surgical morbidity, and comprehensive dietary and medical therapy, can decrease stone events and preserve renal function.
Materials and Methods: A total of 41 consecutive cystinuric patients were treated over a 12-year time period. Patients were followed semiannually with renal sonograms, 24-hour urine collections and clinic visits with an endourologist and nephrologist with a special interest in treating cystinuria. Surgical intervention, when indicated, utilized flexible ureteropyeloscopy preferentially to percutaneous procedures, except for complete staghorn or infectious calculi. Stone-free status was defined as absence of stones or asymptomatic stones up to 4 mm on post-procedural sonography, and stability of disease was defined as having achieved stone free status or maintaining stable, asymptomatic renal stones at last follow-up.
Results: Our 41 patients had a mean age of diagnosis of cystinuria of 21 years (range 4 to 44). At referral, 6 (15%) patients had a nonfunctioning or surgically absent kidney as a result of prior procedures. During mean 67 month follow-up (range 1 to 172), our patients underwent 101 procedures for 80 stone events, 15 of which were for bilateral stones. Under our care, operative interventions were more likely to consist of ureteroscopy (used in 76% of patients), as opposed to percutaneous procedures (used in 24%). Our patients experienced decreased frequency of stone events and subsequent surgical procedures, undergoing one surgery every 38 months as opposed to every 27 months prior to referral. Mean stone size was 34 mm (range 20 to 70 mm), and we achieved overall stone clearance of 84%, with no difference noted between ureteroscopy or percutaneous procedures (Table 1). Renal function remained stable during follow-up, and stability of disease was achieved in 36 (88%) of patients.
Conclusions: For cystinuric patients, a dedicated stone clinic emphasizing careful surveillance, medical management, and surgical intervention minimizing renal trauma effectively reduces stone events and their associated morbidity.

MP-19.15
The Comparison Between Efficacy of Tamsulosin Alone or in Combination with Corticosteroids vs Corticosteroids Alone vs Analgesics in Spontaneous Passage of Distal Ureteral Stones: Results of a Prospective Study
Brausi M[2], Giliberto G[1], Vavassori I[1], La Vecchia S[1]
[1]Dept. of Urology, Treviglio-Caravaggio Hospital BG, Treviglio, Italy; [2]Dept. of Urology, B. Ramazzini Hospital, Carpi, Italy

Introduction and Objective: The objectives of the study were to evaluate and compare the efficacy of tamsulosin alone vs tamsulosin + prednisone vs prednisone alone vs analgesics in determining the spontaneous passage of distal ureteral stones 1cm or less, to determine the number of endourological procedures saved and to observe toxicity
Materials and Methods: From September 2008 to February 2011, 145 patients (pts) with renal colic admitted to the emergency departments of 2 urological centres were recruited in this prospective, not randomised study. Diagnosis of distal ureteral stones was obtained with

x-ray of the abdomen and CT. After a signed informed consent pts received 4 therapeutic regimens: 40 pts (group A) tamsulosin 0.4mg/d alone, 35 pts (group B) prednisone 25mg/d x5 days,10mg x 5 days and 5 mg x 5 days, 45 pts (group C) tamsulosin 0.4mg + prednisone (same schedule). Finally 25 pts (group D) received analgesics (ketoralac orally 1-2 /day or tramadol 1 injection in case of allergy or if > creatinine). Therapy was prescribed at home for 15 days in all the pts. Exclusion criteria were: diabetes, hypotension, complicated stones (fever, pionephrosis), recurrent colics non responding to medical treatment and requiring emergency endoscopic procedures. We evaluated: a) spontaneous stone passage rate b) endo-urological procedures required (ureteroscopy + laser treatment, JJ) c) side effects

Results: The mean pts age was 44.7, 49.2, 42.3 and 47 years for pts in group A, B, C and D, respectively. All the stones were in the distal part of the ureter. The mean diameter of the stones was: 7.3 mm (3-10mm), 4.2 mm (2.7-7.5mm), 7mm (4-10mm) and 5.3mm (3-8mm) in group A, B, C and D respectively. Three pts in group A and 3 pts in group B were lost to follow-up. Spontaneous passage of the stone was: 67.5% (23/37), 34.2% (12/35), 92.8% (39/42) and 28% (7/25) in group A,B,C and D respectively. Endourological procedures (ureteroscopy with laser litotripsy and JJ) were used in 33.5% , 65%,7.8% and 72% in group A,B,C and D respectively. There were 3/37 pts in group A (8.1%) and 2/42 pts in group C (4.7%) who had to stop medical treatment for hypotension and malaise vs 0 in group B and D.

Conclusions: The combination therapy (tamsulosin + prednisone) resulted in the most effective treatment for spontaneous passage of distal ureteral stones (93%) and determined a significant reduction in endourological procedures (8% vs 33%-72%). Side effects were observed in about 5%.

MP-19.16

Bisphosphonate has a Preventive Effect on the Recurrence of Nephrolithiasis in Men

Yasui T, Okada A, Taguchi K, Hirose Y, Fujii Y, Usami M, Ando R, Hamamoto S, Tozawa K, Kohri K

Dept. of Nephro-Urology, Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan

Introduction and Objective: Osteoporosis, which is characterized by a reduction in bone mineral density (BMD), is frequently detected in postmenopausal women as well as in men. Reduced BMD has been reported in urolithiasis patients with hypercalciuria as well as in those with normocalciuria. Bisphosphonates potently inhibit bone resorption and are used in the management of osteoporosis. We have reported that bisphosphonate prevents the recurrence of urinary stones in postmenopausal women. In this study, we investigated the ability of bisphosphonate to prevent calcium stone formation in men with osteoporosis.

Materials and Methods: We studied 16 men (56.5 ± 9.8 years) <70 years of age who were diagnosed with osteoporosis but without hypercalciuria. Patients on steroid or osteoporosis therapy were excluded. Patients had stones composed of calcium oxalate (CaOx) (n = 9) or CaOx + calcium phosphate (CaP; n = 7). We measured serum and urinary values in 24-hour urine specimens before and 3 months after the oral administration of 5 mg/day or 35 mg/week of alendronate (ALN), a new generation bisphosphonate compound. The indexes of the ionic activity product of CaOx, AP(CaOx), and that of CaP, AP(CaP), were estimated using the Tiselius method. Twelve of the 16 patients continued treatment for 12 months.

Results: ALN significantly reduced the excretion of urinary calcium (162 ± 75 to 116 ± 67 mg/day; $p < 0.05$) and the AP(CaOx) index (1.55 ± 0.67 to 0.89 ± 0.79; $p < 0.05$). The AP(CaP) index tended to decrease (1.27 ± 0.75 to 0.96 ± 1.20) as well. Urinary oxalate and phosphate values showed no significant change.

Conclusions: The results suggest that ALN not only improves BMD and osteoporosis but also reduces the risk of calcium stone formation in men with osteoporosis. Bisphosphonate is believed to reduce the urinary excretion of calcium by improving bone metabolism and have a direct effect in the prevention of urolithiasis by preventing CaOx crystallization.

MP-19.17

Role of Tamsulosin as Medical Expulsive Therapy for Proximal Ureteral Calculi: A Randomized Controlled Study

Lojanapiwat B

Div. of Urology, Dept. of Surgery, Chiangmai University, Chiangmai, Thailand

Introduction and Objective: To assess the efficacy and safety of tamsulosin 0.4 mg on the treatment of proximal ureteral calculi size 4-10 mm.

Materials and Methods: Forty-two patients presenting with single radio-opaque proximal ureteral stone sized 4-10 mm were randomized into two groups. Group I (control group, N : 21) patients received oral sodium diclofenac 50 mg twice a day for 10 days, Group II (treated group, N : 21) patients additionally received tamsulosin 0.4 mg/day for 28 days. All patients received diclofenac 75 mg intramuscular when developed pain during the treatment. At 2 and 4 week of the study; stone expulsion rate, stone relocations rate, colic episode and additional treatment were compared between both groups.

Results: At week 2, spontaneous passage and stone relocation was found in 9.5%, 28.57% and 9.5%, 47.6% of control group and treated group, respectively. At week 4, stone passage and stone relocation was 9.5% and 28.57% of control group; 19% and 52.38% of treated group, respectively. Overall stone passage and stone relocation at 4 week was significant different between both groups (61.90% in treated group, 28.57% of control group, p=0.03).Three patients of Group I and four patients of Group II need intramuscular diclofenac injection during the study. All patients tolerate the medication very well without side effect.

Conclusions: Tamsulosin 0.4 mg as medical expulsive therapy (MET) can facilitate the overall stone passage and stone relocation of proximal ureteral stone size 4-10 mm. The advantage of this effect is met for urologists in routine practical management.

MP-19.18

Effect of Epinephrine Mix Saline Irrigation in Percutaneous Nephrolithotripsy Surgery

Yoon J[1], Kim T[2], Oh C[3], Jung J[3], **Lee I**[4]

[1]Busan Paik Hospital, Busan, South Korea; [2]Gosin Baptist Hospital, Busan, South Korea; [3]Haeundae Paik Hospital, Busan, South Korea; [4]Dongeui Hospital, Busan, South Korea

Introduction and Objective: This study evaluates the effect of low doses of epinephrine contained in common saline irrigation solutions in percutaneous nephrolithotripsy(PNL), in addition to investigate adverse acrdiovascular reaction of adding epinephrine to the irrigation fluid.

Materials and Methods: Fifty-four patients requiring PNL were randomly assigned to either an epinephrine group

that received dilute epinephrine irrigation and control group that normal saline irrigation. Intraoperative, intra-renal bleeding was estimated by multiplying the total volume of the irrigation fluid used with the hemoglobin concentration in the irrigation fluid. Postoperatively, the surgeon rated the clarity of the visual field during the PNL by a visual analogy scale.

Results: Intraoperative bleeding was significantly reduced (P=0.01) and the clarity of the visual field was significantly better (P=0.02) in the group of patients receiving dilute epinephrine irrigation compared with the group of patients without epinephrine added to the irrigation fluid. Cardiovascular adverse effect was tarchycardia but severe uncontrolled side effect was not. All cardiogenic problems were controlled by drug.

Conclusions: The addition of epinephrine to irrigation fluid seems to reduce intra-renal bleeding during routine PNL surgery and may improve visualization. Furthermore, no cardiovascular adverse reactions were observed resulting from the intra-renal epinephrine administration.